

**Lucas Control Systems -- Deeco**

**Touch Assist IV  
USER MANUAL**

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## 1.0 Overview

Touch Assist IV is a color mode touch interface software development tool for Deeco terminal products. Deeco terminals use a special language to create graphics and touch areas like circles, arcs, vectors, and touch buttons on the screen. Touch Assist IV translates visual representation of the desired screen image and touch button operations into the Deeco command language. This unique capability can dramatically reduce the time needed to write application programs.

## 2.0 Installation

Touch Assist IV is supplied on a single floppy disk and is comprised of three files:

- 1) INSTALL.EXE
- 2) TOUCH ASSIST IV.ZIP
- 3) README.TXT

To install TOUCH ASSIST IV to your hard disk, place the installing disk into your floppy drive (usually A drive) and enter "*A:INSTALL*" at the MS-DOS prompt. The decompression program on the disk will begin, and you will be told what to do at each step of the unpacking process until all files are copied to the hard disk. You will need at least 4 MB of space on your hard drive for the files.

### 2.1 *Starting the Touch Assist IV*

To run TOUCH ASSIST IV, click the *Start* button from *Task Bar* and select the *Run* option, then the *Run* dialog box will appear. Enter the complete path with the file name *TA41.EXE*. Choose the *OK* button to start the application.

### 3.0 New In This Version

This manual highlight some of the new and enhanced features and the performance improvement for TOUCH ASSIST IV.

- (1) Supports the C9 color terminals
- (2) Allows for Downloading Bitmap
- (3) Add Font Editor
- (4) Additional Fill Patterns (10 patterns)
- (5) Enhancements to User Interface
- (6) Additional features in graphic attributes (color)
- (7) Alpha character attributes (color, italic, underline, reverse)
- (8) New improvements with Online Help
- (9) Support Plug & Play (auto detect comm port)
- (10) Additional touch attributes (color)

### ***System Configuration***

TOUCH ASSIST IV will load the pre-selected Deeco serial terminal, and the communication protocol. Upon running, TOUCH ASSIST IV will search the available COM ports automatically and assign to the host communication. If there are no pre-selected parameters, the default settings will be used. The defaults are the C9 as the default terminal, communication protocol is 9600 baud (if com port is available), 8 data bits, no parity, 1 stop bit and all the control signals such as RTS/CTS, XON/XOFF, DSR/DTR are all on.

### 4.0 Overview

TOUCH ASSIST IV is a Microsoft® Windows95™ based application. It only can run under Windows95 and Windows NT. It is the next generation of application generating software for Deeco touch/graphic serial terminals. These products are intelligent flat panel controllers married with infrared touch sensing arrays. TOUCH ASSIST IV will help you to generate graphic screen images and construct touch menu systems for use in Deeco serial terminals.

TOUCH ASSIST IV is intended to aid the application and OEM designer in incorporating Deeco products into their systems. It provides an easy-to-use graphical interface to the features and functions of the Deeco product family. TOUCH ASSIST IV is a screen generator, a CAD tool and a paint program whose output is easily embedded within the Deeco products.

## 4.1 *Deeco Touch/Graphic Serial Terminals*

Deeco serial terminals are intelligent controllers for flat panel touch systems. The system of flat panel, infrared touch, and controller is designed as a stand-alone ASCII/graphics terminal.

## 4.2 *Touch Capability*

The touch system, offered on all Deeco serial terminals, extends the terminal functionality and creates a simple, powerful man-machine interface. Touch input can be as simple as X, Y coordinate pair reporting. When you touch the screen, the coordinates describing the position of the touch are reported to the host over the communication link. The Deeco serial terminal offers this and more. You may define regions on the screen which represent actuators (buttons). When a button is touched, the terminal may be programmed to take action independent of the host. That is, you may embed commands in the definition of the button freeing the host of wasteful overhead. The touch capability, as part of the Deeco serial terminal, is intended to provide a user-friendly input device. The flexibility and simplicity-of-use makes this type of input device the most attractive.

## 4.3 *Buttons and Pages*

The "button" is the basic touch unit in the intelligent touch system. A button is defined by its position, shape and size on the screen, its visual appearance, and its response. Many buttons may be grouped together to form a page (menu).

The *button response*, which is activated by touching the button, is divided into two parts, the *local response* and the *host message*. The host message is an ASCII string which is sent to the host over the communication link. The local response is an ASCII string which is treated like a host command stream: it may contain any command which the host itself could send to the terminal. It is the local response which represents the embedded intelligence of the touch system.

A *page*, or *menu*, is a group of buttons. A page may be identified by a single number (the page number). When activated by a command, a page is automatically drawn on the screen. Pages may be linked in a hierarchical structure by embedding the command to activate another page in the local response of a button on the currently active page.

## 4.4 Graphics Capability

The terminal functionality is based on Digital Equipment Corporation's popular VT series (VT100, VT220, VT320, etc.). The VT series is the originator and prime user of the ANSI 3.64 standard command language for text terminals. The text terminal emulation is accurate and reliable for these products. Some offer more complete emulations but all offer accuracy in the subset of the VTxxx commands that they support. They support multiple visual pages, multiple character sets, user-definable characters, editing functions, and extensive cursor control.

The graphics functions in Deeco serial terminals are accessed through an extension of the VTxxx command structure. Basic graphic objects such as vector, circle, arc, and graphic text are supported as well as advanced functions controlling coordinate transformation, clipping, and windowing.

## 4.5 Color Palette

The *Color Palette* allows you to choose from 16 available color maps. You can customize the colors used for the graphic objects and buttons in the TOUCH ASSIST IV design window, the area of screen, foreground (pen, text) colors and background (fill, screen) colors. See *graphic objects* and *button attributes* for detail. During power-up, TOUCH ASSIST IV will assign the *black color* as the default screen color, the *white color* as the default pen color.

## 5.0 Touch Assist IV Design Tools

TOUCH ASSIST IV offers the interface designer a variety of tools to build the visual and tactile interface like building button pages, linking pages, and designing associated graphic images. TOUCH ASSIST IV uses function toolbars, color palettes, on-line help, and download functions to aid the design process. The final output of TOUCH ASSIST IV can be transferred directly to a Deeco serial terminal. Some Windows techniques used in TOUCH ASSIST IV and described in this manual such as "clicking", "double clicking", and "dragging" are essential in the use and understanding of TOUCH ASSIST IV. Descriptions of these techniques and others may be found in the Windows manual.

The TOUCH ASSIST IV is composed primarily of four tool types:

- 1) System configuration and control
- 2) Target configuration and control
- 3) Graphics generation
- 4) Touch menu generation.

The access to these tools is from the *Menu Bar* and the *Function Toolbars*. TOUCH ASSIST IV layout consists of the following major components on the PC monitor:

***Title Bar***

This is a standard Windows item that displays the file name of the last TOUCH ASSIST IV file opened or accessed. It also has the standard Windows control bar and min/max controls.

***Design Window***

This is where the visual touch/graphics design is displayed as it is built.

***Menu Bar***

This is a standard Windows item which gives access to pull down menus that control the configuration of the system, the target terminal, and other TOUCH ASSIST IV features and functions.

***Function Toolbars***

An icon based front end to TOUCH ASSIST IV design tools.

***Status Bar***

This is where target terminal, system information and context sensitive help are displayed.

***Host Response Status Bar***

This is where the host information are displayed .

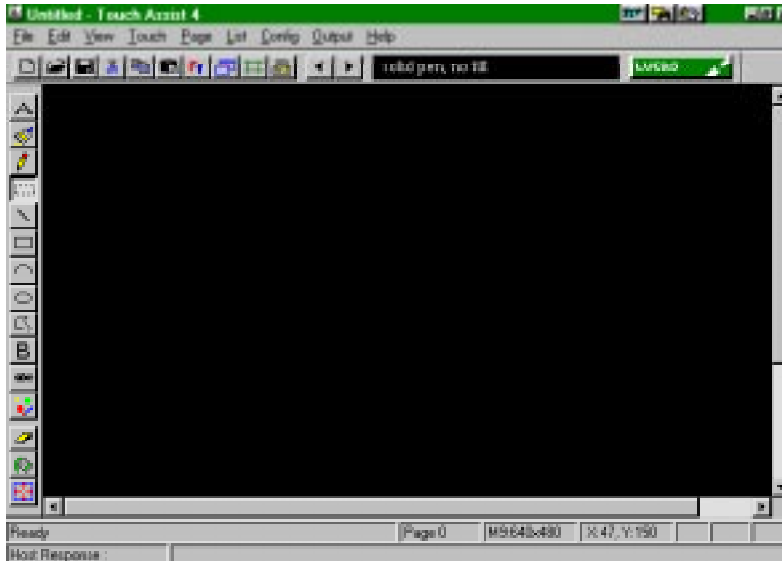
**5.1 Title Bar**



The title bar, a standard Windows characteristic, displays the program title (Touch Assist IV) and more importantly the name of the active session, (the file name selected). The active session is named after the file used for default file operations. If there is no default file, the session is named "*untitled*". The default file name is set whenever a file is opened or saved. These operations are accessed through the *File* menu selection. Specifying the *New* option from *File* menu resets the default file to none.

## 5.2 Design Window

The *Design Window* is where graphic images and touch menus are drawn and laid out. It represents a portion or all of the physical screen of the Deeco serial terminal.



The portion of the physical screen which is viewed may be changed (if necessary) by the scroll bars on the bottom and side of the design window. The target serial terminal and the current touch page are identified in the status bar. The page number is selected either from the function toolbars or menu bar. The serial terminal type is selected from the *Module* option of *Config* menu. The terminal type defines the screen size and the number of available pages.

## 5.3 Menu Bar



The *Menu Bar* consists of nine pull down menus: File, Edit, View, Touch, Page, List, Config, Output, and Help. Standard Windows keyboard accelerator techniques allow the menus to be activated by typing a letter as well as by mouse activation.

### 5.3.1 File

The **File** menu is used to save and retrieve sessions. A session is an instance of running TOUCH ASSIST IV and designing touch menus and graphics. Sessions may be saved, retrieved, and combined. Many of the file operations available on the **File** menu conform to standard Windows. Beyond the obvious file operation, some file menu items impact modes or other functions in TOUCH ASSIST IV, or provide additional capabilities.

<u>N</u> ew	Ctrl+N
<u>O</u> pen ...	Ctrl+O
<u>S</u> ave	Ctrl+S
Sa <u>v</u> e As...	F12
<u>V</u> iew...	Ctrl+W
A <u>p</u> pend...	Ctrl+D
D <u>e</u> lete ...	Del
Exit	

### 5.3.2 New File

The **New** option clears all defined objects from the session. All graphic objects, button menus, and list references are erased.

**Example: Creating a new file**

- Step 1. Select the **New** option from **File** menu. The **Save** dialog box will appear to prompt you to save current modified active file.
- Step 2. At this point you may create graphics or buttons in the design window.
- Step 3. Select the **Save As** option from **File** menu, the **SaveAs** dialog box appears.
- Step 4. Enter the file name and click the **Save** button.

### 5.3.3 Open File

The *Open* option is used to retrieve an existing session file. File names are prompted for in the dialog box associated with these functions. The selected file name becomes the session name appearing in the TOUCH ASSIST IV title bar. Many touch modes are reset to the values which have been assigned to the selected file. See *Options* option from *Touch* menu for detail.

*Example: Opening an Existing File*

- Step 1. Select the *Open* option from *File* menu. The *Save* dialog box will appear to prompt you to save current modified active file.
- Step 2. Select the desired file from the choices presented in the *Open* dialog box.
- Step 3. Click the *Open* button to open the selected file or click the *Cancel* button to abort the process.

### 5.3.4 Save File

The *Save* option is used to save the file currently being worked on to its existing file name. A file may be saved at any time after it is opened.

*Example: Saving an Active File*

- Step 1. Follow steps 1-3 from the example of opening an existing file.
- Step 2. Edit the opened active file.
- Step 3. Select the *Save* option from *File* menu.

### 5.3.5 SaveAs File

The *SaveAs* option is used to save the file currently being worked on to its existing file name or to a new file name. The original file will still exist under the original file name. This is a useful tool that will allow you to test different modifications while leaving the original intact.

*Example: Saving an Active File under Different Name*

- Step 1. Follow steps 1-3 from the example of opening an existing file.
- Step 2. Select the *SaveAs* option from *File* menu.
- Step 3. Enter the new file name in the *SaveAs File* dialog box.
- Step 4. Click the *Save* button or click the *Cancel* button to abort the process.

### 5.3.6 View File

The *View* option is used to examine the text information in any given file created during a session. The desired file must be converted to an ASCII file before it can be viewed. See *Output* menu for detail.

*Example: Viewing a Text File*

- Step 1. Select the *View* option from *File* menu, the *View File* dialog box appears.
- Step 2. Select the desired text file to be viewed.
- Step 3. Click the *Open* button to display the text file.
- Step 4. Click the *OK* button to exit the *View File* dialog box.

### 5.3.7 Append File

The *Append* option is used to combine sessions. The file specified in the appending operation is combined with the current session. Appending does not change the session name. When appending session, buttons on pages are combined and care must be taken if buttons overlap. Another possible problem encountered is references to files as display lists. When the current session and the appended session both name a file as a particular display list, the appended files reference stands as the one used from then on.

*Example: Using the Append Function to Combine a File*

- Step 1. Open the desired file to be appended using procedures discussed in the opening a file example.
- Step 2. Select the *Append* option from *File* menu the *Append File* dialog box appears.
- Step 3. Select the target file from the dialog box.
- Step 4. Click the *Open* button to combine the files or click the *Cancel* button to abort the process.
- Step 5. The first file will now be combined under the heading of the target file that was selected.

### 5.3.8 Delete File

The *Delete* option is used to delete any given file found under the TOUCH ASSIST IV directory. All information associated to the file will be lost.

*Example: Deleting a File*

- Step 1. Select the *Delete* option from *File* menu. The *Delete File* dialog box appears.
- Step 2. Select the desired file to be deleted from the dialog box.
- Step 3. Click the *Open* button to delete the selected file or click the *Cancel* button to abort the process.

### 5.3.9 Exit Touch Assist IV

The *Exit* option allows you to exit TOUCH ASSIST IV program and return to Windows95. If the current active file has been modified, the *Save* dialog box will appear to prompt you to save it.

*Example: Exiting from Touch Assist IV.*

- Step 1. Select the *Exit* option from *File* menu.
- Step 2. At this point a dialog box will prompt you to save file.
- Step 3. Clicking the *OK* button will save the file prior to exiting TOUCH ASSIST IV. Clicking the *Cancel* button will exit TOUCH ASSIST IV without saving the changes made to the current active file.

### 5.3.10 Edit

The *Edit* menu provides some basics of editing within pages in TOUCH ASSIST IV design window.

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Select All	

### 5.3.11 Cut

See *Function Toolbars* for detail.

### 5.3.12 Copy

See *Function Toolbars* for detail.

### 5.3.13 Paste

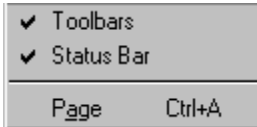
See *Function Toolbars* for detail.

### 5.3.14 Select All

The *Select All* option can be used to select/deselect all the graphic objects and buttons of current displaying page in the design window.

### 5.3.15 View

The *View* menu changes the look and size of design window and menus as well as more.



### 5.3.16 Toolbars

The *Toolbars* contain function buttons that give you quick mouse access to many commands and features. You can see the name of each toolbar button in a *ToolTip*. When you point to a button with the mouse, the button name will appear in a box. The *Toolbars* option allows you to turn on and off the *Function Toolbars* in the design window.

### 5.3.17 Status Bar

The *Status Bar* show information and messages at the bottom of the design window. It provides the information about the mouse position, the current displaying page, the prompt text of the command and the status of some important keys. The *Status Bar* option allows you to turn on and off the *Status Bar* in the design window.

### 5.3.18 Page

Unlike the design window however, a simulation of the entire screen of the target device is shown. The *Page* option allows you to view the entire page. The buttons and graphic objects are shown as they appear upon the Deeco serial terminal. This is a view only function. *No changes may be made to the page.*

#### *Example: Activate View Page*

- Step 1. Select the *Page* option from *View* menu, the *View Page* window appears.
- Step 2. Click the *x* box located at the upper right corner of the *View Page* window to return to design window.

### 5.3.19 Touch

The Deeco serial terminal supports several basic types of touch reporting. The touch sensor normally sends touch information, depending on which modes are active.

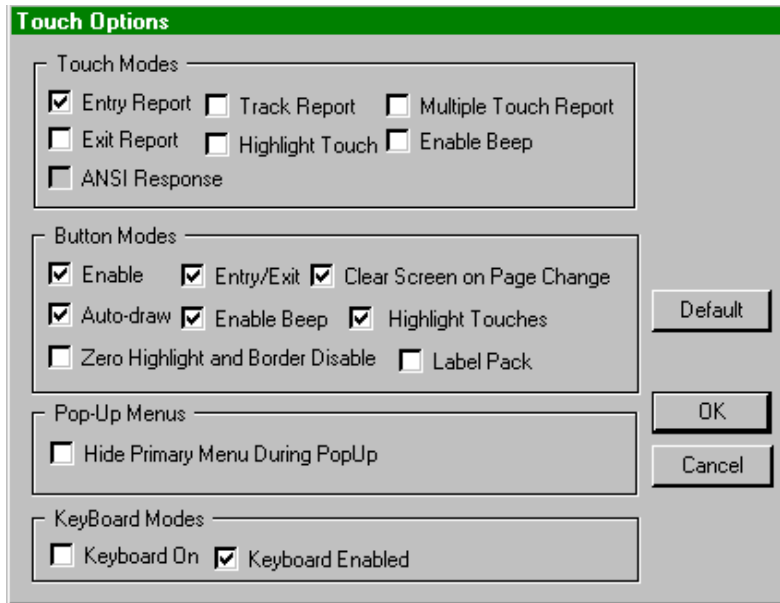
Options..	Ctrl+T
Print Page	Ctrl+G
Print All	Ctrl+P
Test	

### 5.3.20 Options

Parameters which control touch application generation are accessed through this menu. The Deeco serial terminal supports many modes of operation which change the look and feel of touch buttons and menus as well as more rudimentary touch functionality. For detailed descriptions of these modes, refer to the product manual of the device. Typically, the default values used by TOUCH ASSIST IV are sufficient.

*Example: Configuring Touch Button Report Modes.*

Step 1. Select the *Options* option from *Touch* menu, the *Touch Options* dialog box appears.



Step 2. Select the desired button report mode(s) from the choices provided. The marked box will enable that mode.

Step 3. Click the *OK* button to save all the changes, click the *Default* button to use all the default settings or click the *Cancel* button to abort the process.

### 5.3.21 Print Page

The *Print Page* option prints the view offered by *Page* option from *View* menu.

*Example: Printing a Page*

- Step 1. Open an existing file or created a new file using procedures discussed in the *File* menu.
- Step 2. Select the page that you want to print.
- Step 3. Select *Print Page* option from *Touch* menu. The current page in the design window will be printed.

### 5.3.22 Print All

The *Print All* option prints the view offered by *Summary* option from *Page* menu.


*Example: Printing All*

- Step 1. Open an existing file or created a new file using procedures discussed in the *File* menu.
- Step 2. Select *Print All* option from *Touch* menu. All the pages which belong to the current active file will be printed in a hierarchical structure view.

### 5.3.23 Test

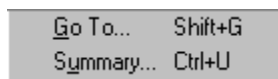
The application generated in a TOUCH ASSIST IV session may be tested before downloading it to the attached Deeco serial terminal. You may view and change the result of all the activities of each button at different page. This is a very helpful function to reorganize each button page before downloading the application to the target terminal. The responses of the button menus and button menu coupling can be tested. Using the *Host Response Status Bar* of TOUCH ASSIST IV, the host messages may also be verified during testing.

#### *Example: Using Test Mode*

- Step 1. Open an existing file or created a new file using procedures discussed in the *File* menu.
- Step 2. Click the  button to show the *Host Response Status Bar*.
- Step 3. Select the *Test* option from *Touch* menu. All TOUCH ASSIST IV *Menu Bar* and *Function Toolbars* are disabled while in test mode.
- Step 4. Positioning the mouse onto a button image and clicking the left mouse button once emulates activating the button. The host message will show on the host response status bar and the local response will be executed.
- Step 5. Select *Test* option from *Touch* menu to exit the test mode.

### 5.3.24 Page

The *Page* menu is used for viewing the contents of button pages. The current page is the button page currently displayed and active for editing. TOUCH ASSIST IV always displays the contents of the current page on the design window. All the defined graphic objects and buttons will be saved into the current page. There are two ways to select a desired page. Using the function toolbar page button to change to the *Previous or Next* page, or use the *GoTo* option from *Page* menu to select any page.

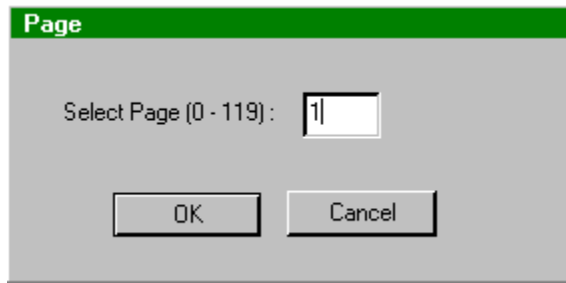


### 5.3.25 GoTo

The *GoTo* option allows you to display any button page in the design window.

*Example: Select a page using GoTo*

Step 1. Select the *GoTo* option from *Page* menu, the *Page* dialog box appears.



Step 2. Enter the page number 1.

Step 3. Click *OK* button to exit the *Page* dialog box. The design window will display the contents of page 1 and *Page 1* will be displayed in the *Status Bar* or click the *Cancel* button to abort the process.

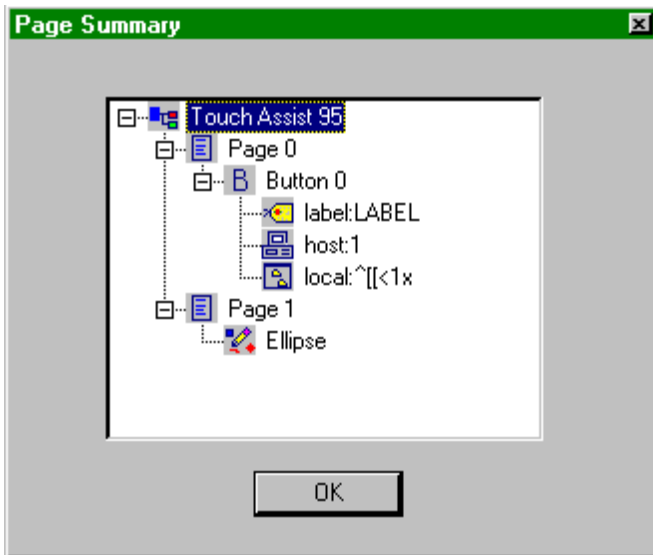
### 5.3.26 Summary

The *Summary* option allows you to view the current application in different ways. In this view, all pages are shown in a hierarchical structure. Individual elements of the page, buttons and graphic objects, are described. The structure can be expanded (click the + sign) and scrolled to view all pages and their elements. The detailed specifications of individual buttons on a page can also be viewed.

*Example: Page Summary*

Step 1. Open an existing file or created a new file using procedures discussed in the *File* menu.

Step 2. Select the *Summary* option from *Page* menu, the *Page Summary* dialog box appears. You will be able to view the summary of the button pages which have been defined by the current active file.

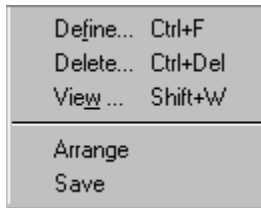


Step 3. Click *OK* button to exit the *Page Summary* dialog box.

### 5.3.27 Display Lists

Display lists are a feature in the Deeco serial terminals. A display list is a sequence of commands which are grouped together and may be referred to by a single numeric ID. They are used as macro commands. In the terminal, these commands can be stored locally, often in non-volatile memory, so that the host system can issue a single simple instruction to execute the entire command macro. This saves on communication overhead and helps embed local intelligence and flexibility in the target terminal. TOUCH ASSIST IV provides a means to define and use display lists when designing applications.

In TOUCH ASSIST IV, display lists can be used to couple graphics and touch menus. The action (local response) of a button may invoke a display list. The list contents, graphic commands, are executed resulting in graphic images on the screen. A local response may also contain a command to change button pages. By doing both in a local response a button may change button pages and efficiently draw its associated graphics. Buttons on many different pages may use the same local response combination of page change and display list. See examples section to learn how to create and use a display list.

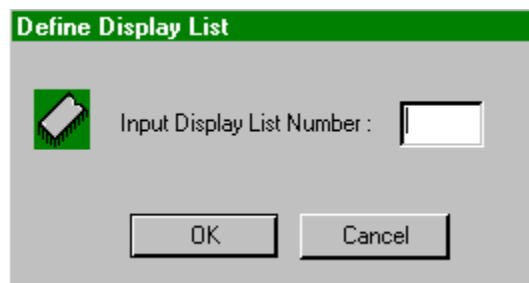


### 5.3.28 Define List

Display lists are referenced as separate files in a TOUCH ASSIST IV design. These files typically will contain frequently used graphics. In fact, a file referenced as a display list may contain graphics, or graphics generated text. *Attempting to reference a file which contains button menu definitions as well will result in an error.* To reference a file as a display list in a TOUCH ASSIST IV session, use the *Define* option from *List* menu. The dialog box invoked by this option asks for the numeric ID of the list and the file to be referenced. The ID is then used throughout TOUCH ASSIST IV to reference the display list.

#### *Example: Creating a Display List*

Step 1. Select the *Define* option from *List* menu, the *Define Display List* dialog box appears.



Step 2. Enter any desired number from 1 to 255 into the *Display List Number* edit field. For this example, input a value of 1.

Step 3. Click the *OK* button , the *Select Display List File* dialog box appears.

Step 4. Select the name of a new file which will associated with the display list number.

Step 5. Click the *Open* button to end the process.

Step 6. At this point, the user has created a display list that can be accessed as part of a button response whenever necessary. Refer to the section on *Button Local Response* for further details.

### 5.3.29 Delete List

The *Delete List* option allows lists to be deleted. The deleted lists will not be downloaded or otherwise specified in output file. References to deleted lists, such as in the local responses of buttons, are not deleted. The Deeco serial terminals will correctly ignore references to non-existent lists.

#### *Example: Deleting a Display List*

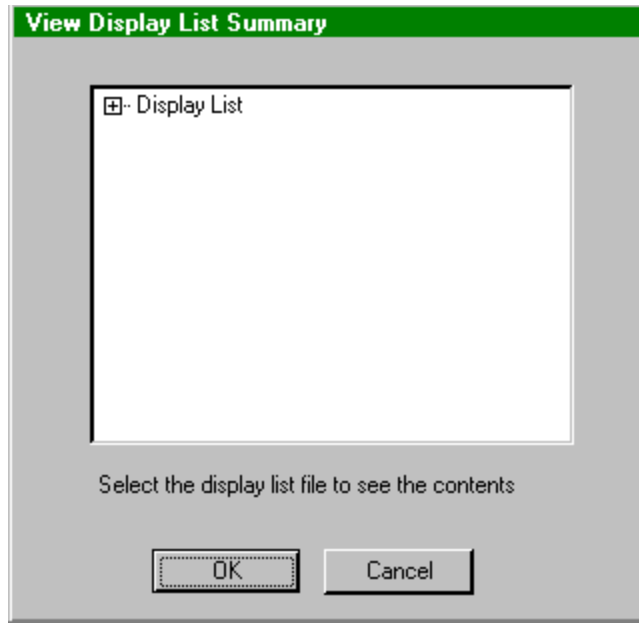
- Step 1. Select the *Delete* option from *List* menu, the *Delete Display List* dialog box appears.
- Step 2. Enter the number of the display list to be deleted into the *Display List Number* edit field.
- Step 3. Click the *OK* button. This will cause the specified display list to be deleted from TOUCH ASSIST IV, but the file which associated with the deleted display list is intact.

### 5.3.30 View List

The *View* option from *List* menu displays a graphical directory of all defined lists and the files associated with the lists.

#### *Example: Viewing Display List Summary*

- Step 1. Open an existing file containing display lists.
- Step 2. Select the *View* option from the *List* menu. The *View Display List Summary* dialog box appears.



- Step 3. Click the + sign to expand the graphical directory. The vertical scroll bar located at the right hand side of the dialog box allows you to advance the summary towards additional lists as necessary.
- Step 4. Select a display list and click the **OK** button , the *View ASCII File* dialog box appears. It allows you to view the ASCII information contained within the selected display list.
- Step 5. Click the **OK** button to exit the *View ASCII File* dialog box.

### 5.3.31 Arrange and Save List

This modal functions are useful in formatting various touch and graphic objects in the design window. During in the test mode, if a display list has been assigned to a button as a local response capture, at this point, TOUCH ASSIST IV allows you to rearrange the position of each graphic object in order to align with the button.

#### *Example: Using Arrange/Save List in Test mode*

- Step 1. Open an existing file containing display lists.
- Step 2. Select the **Test** option from **Touch** menu.

- Step 3. Select the *Arrange* option from *List* menu. The *Select Display List* dialog box appears.
- Step 4. Select the display list and click the *OK* button. The contents of the selected display list will be displayed on the design window.
- Step 5. Select the graphic object and move to the desired location.
- Step 6. Select the *Save* option from *List* menu to save all the changes.
- Step 7. Select the *Test* option again to exit the test mode.

### 5.3.32 Config

Configuration refers to both the development system (the PC running TOUCH ASSIST IV under Windows) and the target Deeco serial terminals.

Reset	Ctrl+R
Touch Module...	Ctrl+E
Communication...	Ctrl+N

### 5.3.33 Reset Terminal

You can manually send a *Reset* command to the target terminal. When the *Reset* option is selected from *Config* menu, the attached Deeco serial terminal connected to the serial port of PC will be reset. All the graphic objects, button pages and display lists will be deleted. During downloading file, The *Reset* command will be sent automatically by TOUCH ASSIST IV.

#### *Example: Sending a Reset to the Target Terminal*

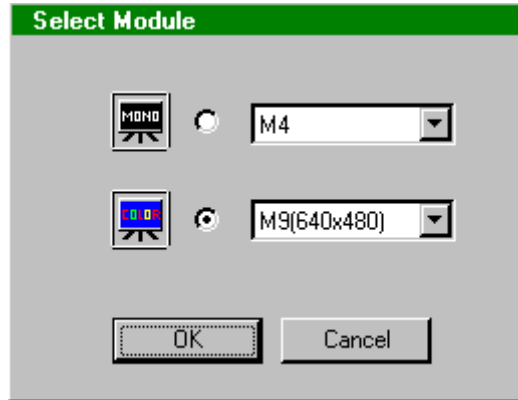
- Step 1. Select the *Reset* option from *Config* menu.

### 5.3.34 Touch Module

The Deeco serial terminal to be used as the target of a TOUCH ASSIST IV design is selected from the *Touch Module* option. The Deeco serial terminals are identified by their controller model number (C3, C4, C320, etc.). To select one, click the selection box near the name. The selection of the target terminal implicitly selects the screen dimension and insures proper translation of the TOUCH ASSIST IV design to output format.

**Example: Configuring Touch Assist IV for a specific module**

Step 1. Select the *Touch Module* option from *Config* menu, the *Select Module* dialog box appears.



Step 2. Select the appropriate terminal. Refer to the following list of compatible terminals by category. Each selection can be toggled on and off by rechecking the same selection.

**C320 (640x200/640x400):**

M320ST/M320ST-AC  
ST2200  
ST2200XT  
ST2205  
ST2400

**C4 (640x400):**

M4ST  
ST3220  
ST3225  
ST3420

**C3 (512x256):**

M3  
M3-15

**C9 (640x480):**

M9ST  
ST4500

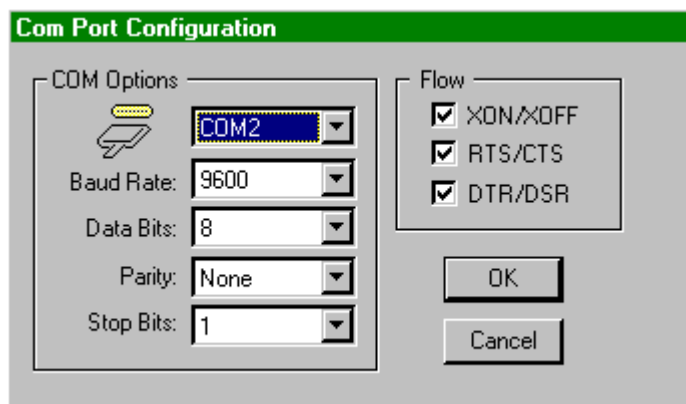
Step 3. Click the *OK* button to activated the configuration or click the *Cancel* button to abort the selection.

### 5.3.35 Communication

To download and test a TOUCH ASSIST IV design, the target terminal must be connected to the PC serially. The serial link and data transfer formatting between the PC COM port and the target terminal must be defined correctly. The serial link, and data transfer formatting are defined using the **Communication** option from **Config** menu. (The default settings are 9600 Baud, 8 Data Bits, 1 Stop Bit and No Parity, the control signals such as XON/XOFF, RTS/CTS, DTR/DSR are all on)

**Example: Setting Communication Port Settings**

Step 1. Select the **Communication** option from **Config** menu, the **Comm Port Configuration** dialog box appears.



Step 2. Select the appropriate configuration selections. For details regarding communication requirements, refer to the Applications manual for the specific terminal.

Step 3. Click the **OK** button to activate the selected communications settings or click the **Cancel** button to abort the settings.

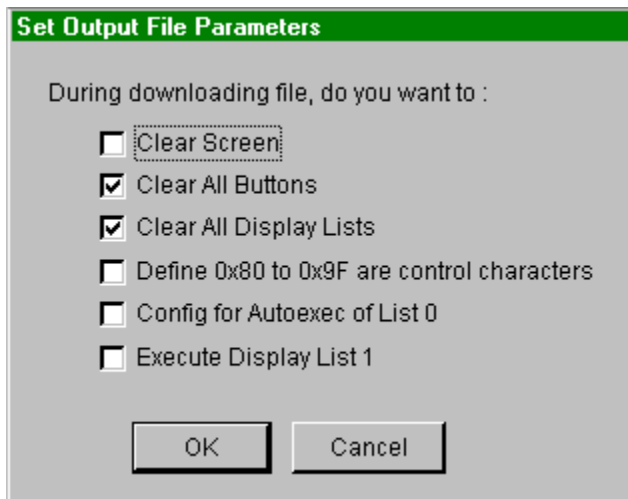
### 5.3.36 Output

The **Output** menu allows you to convert file into various output forms. The output file can be used in alternate programming mode such as Assembly Language and C Language.

S <u>ettings...</u>	Shift+S
D <u>ownload</u>	Ctrl+L
A <u>SCII</u> File	Shift+I
A <u>SM</u> Data Format	Shift+A
C <u> Data</u> Format	Shift+C
Send Command to...	Shift+O
Send <u>t</u> ext file to...	Shift+T

### 5.3.37 Settings

During downloading an active file to the attached Deeco serial terminal or output file, TOUCH ASSIST IV will prompt you a list of conditions which will be activated. You can select the appropriate conditions for the downloading.



### 5.3.38 Clear Screen

This option will command the attached Deeco serial terminal to clear the information displaying on the design window.

### 5.3.39 Clear All Buttons

This option will command the attached Deeco serial terminal to release all the system memory reserved for the buttons storage.

### 5.3.40 Clear All Display Lists

This option will command the attached Deeco serial terminal to release all the auxiliary memory reserved for the display lists storage.

### 5.3.41 Define 0x80 to 0x9F Are Control Characters

This option will command the attached Deeco serial terminal to treat the characters range from 0x80 to 0x9F either as displaying characters or control characters.

### 5.3.42 Config for Autoexec of List 0

This option will command the attached Deeco serial terminal to save all the received command sequences into *display list 0*. The display list 0 will be executed automatically by the serial terminal after powering up.

### 5.3.43 Execute Display List 1

This option will command the attached Deeco serial terminal to execute display list 1.

#### *Example: Change the Downloading Settings*

- Step 1. Select the *Settings* option from *Output* menu, the *Set Output File Parameters* dialog box appears. At this time you will be prompted with a list of conditions to be activated during downloading. Select the appropriate conditions for the downloading.
- Step 2. Click the *OK* button to save the options or click *Cancel* button to abort the process.

### 5.3.44 Download

The *Download* option is used to transfer files to the attached Deeco serial terminal. TOUCH ASSIST IV translates the data files into appropriate command sequences as it downloads over the serial link. Once communication has been established, the application may be downloaded to the target terminal. The actual downloaded command sequences stream may be inspected using *View* option from *File* menu.

*Example: Downloading a File to Target Terminal*

- Step 1. Follow steps 1-3 from the example of opening an existing file.
- Step 2. Select the *Download* option from *Output* menu. The *active file* and *the settings* will all be downloaded at this time.

### 5.3.45 ASCII File

The *ASCII File* option allows you to convert the active file shown in the design window into ASCII format file. You can use the *Send Text File To* option to download this ASCII file to target terminal.

*Example: Outputting ASCII File*

- Step 1. Follow steps 1-3 from the example of opening an existing file.
- Step 2. Select the *ASCII File* option from *Output* menu.
- Step 3. The ASCII formatted file is viewable using the *View* option from *File* menu.

### 5.3.46 ASM Data Format

The *ASM Data Format* option allows you to convert the active file in the design window into *Assembly language* format file (with the *ASM* extension). This is not a compiled file, it is a co-generated file with a format change. You can paste the file into your programming application.

*Example: Outputting ASM Data Format*

- Step 1. Follow steps 1-3 from the example of opening an existing file.
- Step 2. Select the *ASM Data Format* option from *Output* menu.

### 5.3.47 C Data Format

The *C Data Format* option allows you to convert the active file in the design window into *C language* format file (with the *C* extension). This is not a compiled file, it is a co-generated file with a format change. You can paste the file into your programming application.

*Example: Outputting C Data Format*

Step 1. Follow steps 1-3 from the example of opening an existing file.

Step 2. Select the *C Data Format* option from *Output* menu.

### 5.3.48 Send Command To

The *Send Command To* option allows you to send any command to the attached Deeco serial terminal for any operating information such as ask for the results of self-test, get/set touch modes, activate a display list and so on. The results of these inquiries will be reported by the terminal and displayed in the *Host Response Status Bar*.

*Example: Sending a Command to Target Terminal*

Step 1. Select the *Send Command To* option from *Output* menu, the *Send Command To Terminal* dialog box appears.

Step 2. Enter the command string into the edit field. You can enter the ANSI symbols (CSI, DCS, ST) into the command string.

Step 3. Click the *OK* button to send command to the attached serial terminal or click the *Cancel* button to abort the process.

### 5.3.49 Send Text File To

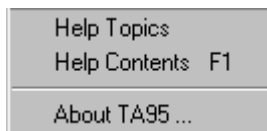
The *Send Text File To* option allows you to send any ASCII file to the attached Deeco serial terminal.

*Example: Sending a Text File to Target Terminal*

- Step 1. Select the *Send Text File To* option from *Output* menu, the *Send Text File* dialog box appears.
- Step 2. Select the ASCII file.
- Step 3. Click the *Open* button to send file to the attached serial terminal or click the *Cancel* button to abort the process.

### 5.3.50 Help

TOUCH ASSIST IV utilizes a standard Windows help facility. An index is provided for common TOUCH ASSIST IV procedures and concepts. The index is accessed via the *Help Topics* option. To get help on Windows help facility, use the *Help Contents* option.



### 5.3.51 Help Topics

The *Help Topics* option allows you to search in help for information related to topics on which you want more information. You can type the topic or select it from the list in the *Search* dialog box and then click the *Display* button to see the detail.

### 5.3.52 Help Contents

The *Help Contents* option will display the contents of TOUCH ASSIST IV system, step-by-step instructions and examples.

#### *Example: Using Help Contents*

- Step 1. Select the *Help Contents* option from *Help* menu.
- Step 2. Position the mouse pointer on the desired subject of inquiry.
- Step 3. Click the left button on the mouse.
- Step 4. Follow instructions on the screen.

### 5.3.53 About TOUCH ASSIST IV

The *About TOUCH ASSIST IV* option will display information about your copy of Touch Assist IV, including the version number, the copyright, and the system information for your computer.

## 5.4 The Function Toolbars



The tools represented by the *Function Toolbars* icons allow the creation and manipulation of touch buttons and pages, and the manipulation of graphics and text. These toolbars hold all the graphic edit functionality such as cut and paste, move, re-size, and delete as well as the button definition functionality.

Items on the toolbars are selected by moving the cursor to them and clicking. Some functions, such as the edit functions are modal; that is, they are a mode of operation and the mode continues until another function is selected. Functions such as button creation are not modal; they cause an immediate action. The significance of modal functions is that they inhibit non-modal functions and graphic draw operations. It is not possible to draw graphics in the design window during a modal operation. The meaning and function of the mouse cursor in the design window is tied to the modal operation in effect. Modal functions are terminated by selection of another function.

### 5.4.1 New, Open and Save

See *File* menu from *Menu Bar* for detail.




### 5.4.2 Cut, Copy and Paste


*Cut* and *Copy* work together with *Paste* to allow the movement of graphic objects and buttons from one page to another. They are modal operations and will be in affect until another function is selected. Typically the other function will be *Paste*. *Cut* and *Copy* only differ in how the source objects are treated in the ensuing *Paste* operation. If the objects are cut, they will be deleted when the paste happens, if they are copied, they will remain unaffected by the paste. The following description of the cut operation pertains to copy as well, except for the behavior noted.

An item or group of items is selected during a cut operation by creating a *cut area*. The cut area is a rectangular region encompassing all the desired items. An item must be fully contained within the cut area to be affected. The cut area is created by moving the mouse cursor to the top left of the desired region, pressing the left mouse button, and dragging the mouse (moving it with the button depressed) diagonally to the lower right corner of the desired region. The cut area will be identified by a dotted rectangle which rubber-bands as the mouse is dragged.

The cut area will be removed from the screen (cut) when the paste operation has been selected and performed. To paste, select the page where the item is to be pasted then select the *Paste* function from the function toolbars. The objects within the cut area will be positioned on the new page at the same relative coordinates as they held on the original page. They can be moved, if desired, to a new relative position by using the move function.

#### *Example: Cut and Paste Function*

- Step 1. Select the *New* option from *File* menu.
- Step 2. Define a circle on the design window as described in the circle example.
- Step 3. Click  button from the function toolbars.
- Step 4. Place the mouse pointer at a point above and to the left of the circle. Click and drag the mouse until a dotted box fully encloses the circle.
- Step 5. Click the  button from function toolbars. The circle within the cut area disappears.
- Step 6. Click the  button on the function toolbars. This will change the design window to a new page. The current page number is displayed in the status bar.


Step 7. Click the  button from function toolbars the circle appears at the new page.

### ***Example: Copy and Paste Function***

Unlike the cut function, the copy function will leave the original objects intact. Be careful when copying buttons. Some buttons' local response such as popup might required modification to be compatible with their new location.


Step 1 Select the *New* option from *File* menu.


Step 2. Define a circle on the design window as described in the circle example.

Step 3. Click  button from the function toolbars.

Step 4. Place the mouse pointer at a point above and to the left of the circle. Click and drag the mouse until a dotted box fully encloses the circle.

Step 5. Click the  button from function toolbars.

Step 6. Click the  button on the function toolbars. This will change the design window to a new page. The current page number is displayed in the status bar.

Step 7. Click the  button from function toolbars.  
The circle will appear at the new page.

### **5.4.3 Font Editor**

With *Font Editor*, you can modify an existing font file to create a new font file for the application. TOUCH ASSIST IV supplies 4 template font files with font editor which are font.f08(8x8), font.f14(8x14), font.f16(8x16) and font.f19(8x19). Based on the selected Deeco serial terminal, the correct template font file will be loaded automatically during the initial of font editor.

#### 5.4.4 Working Area


Font Editor provides the working area where the font data will be loaded into and edited. The displaying points of the width and height of the font data are represented by each rectangle, click each *rectangle* will set/clear each point. There are *dark circle* located around the working area, click each dark circle will set/clear each row or column of the points. Also, there is a *rectangle located at the top left corner* of the working area, click this rectangle will set/clear the whole working area. Font Editor gives a special term of the above three control locations which are called *control points*.

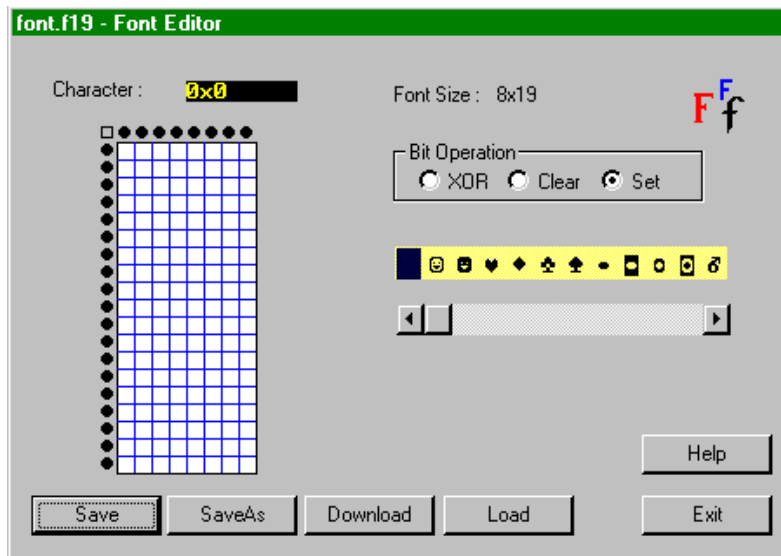
#### 5.4.5 Bit Operations

There have three bit operations which you can use to set/clear the control points in the working area during edit the font character.

- (1) **XOR** bit manipulation: Under this mode, clicking the control points in the working area always toggles the points.
- (2) **SET** bit manipulation: Under this mode, clicking the control points in the working area always sets the points.
- (3) **CLEAR** bit manipulation: Under this mode, clicking the control points in the working area always clears the points.

### 5.4.6 How to Create a Font File

Step 1. Click the  button from function toolbars, the font editor dialog box appears.



Step 2. Click the **Load** button to load an existing font file or use the current template font file to build a new font file.

Step 3. Using the scrollbar to select the font character. The selected font character will be loaded into the working area.

Step 4. Select the **bit operation**.

Step 5. Click the **control points** to edit the font characters.

Step 6. Click **Save** or **SaveAs** button to save the new font file.

Step 7. Click the **Download** button to download the font file.


Step 8. Click the **Exit** button to exit the font editor dialog box.

Step 9. Use **Send Command To** option from **Output** menu to test the new font file.


### 5.4.7 Screen Color

The *Screen Color* function allows you to set the desired screen color of the design window if the current selected Deeco serial terminal is C9.

#### *Example: Set Screen Color*

- Step 1. Click  button from the function toolbars, the *Palette* dialog box appears.
- Step 2. Click the color button from the *Palette* dialog box. At this time, the screen color of the design window will be replaced with the new color.


### 5.4.8 Grid Lines

*Grid lines* is a useful visual tool for aligning buttons and graphics in the design window. The  button is a toggle button to turn on and off the grid lines. The current selected pen color will be used to draw the grid lines.

### 5.4.9 Host

The *Host* function refers to an additional window located under the *Status Bar*, the *Host Response Status Bar*, which can be displayed on the screen. The status line displays information which is transmitted from the attached Deeco serial terminal connected to the COM port of the PC. The host function toggles the displays of the *Host Response Status Bar*.


#### *Example: Using the Host Function*


- Step 1. Select the *New* option from *File* menu.
- Step 2. Click  button from the function toolbars. The *Host Response Status Bar* appears at the bottom of the window.
- Step 3. Create a button as described in button example.
- Step 4. Select *Test* option from *Touch* menu.
- Step 5. Click the button located within the design window with the mouse pointer. You will notice the host response within the *Host Response Status Bar*.
- Step 6. Select *Test* option from *Touch* menu to exit the test mode.

### 5.4.10 Page Control

TOUCH ASSIST IV provides a quick and easy way to select *adjacent* page, so you don't have to go through the menu selection to change to the previous or next page.

*Example: Select the adjacent page*

Step 1. Click the  button to select the previous page.


Step 2. Click the  button to select the next page.

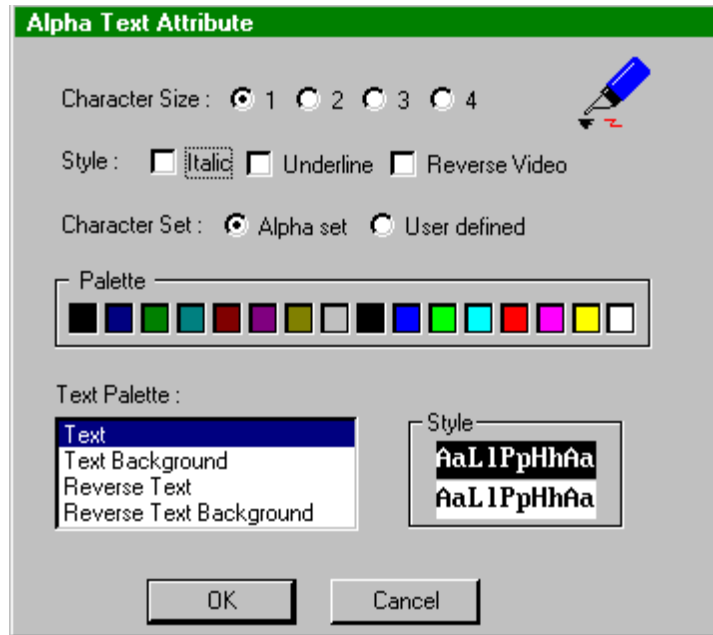
### 5.4.11 Alpha Character Control

TOUCH ASSIST IV allows you to change alpha controls such as alpha text color, attributes (italic, underline, reverse video), size and character sets.

*Example: Set the alpha character control*

Step 1. Follow steps 1-3 to open an existing file.

Step 2. Click  button from the function toolbars, the *Alpha Text Attribute* dialog box appears.



Step 3. Choose alpha text attributes and size.

Step 4. Click the *OK* button to confirm the changes or click the *Cancel* button to abort the process.

Step 5. Download the active file to the attached Deeco serial terminal.

Step 6. Use *Send Command To* option from *Output* menu to send any text string to the target terminal to see the result.


#### 5.4.12 Pen and Fill

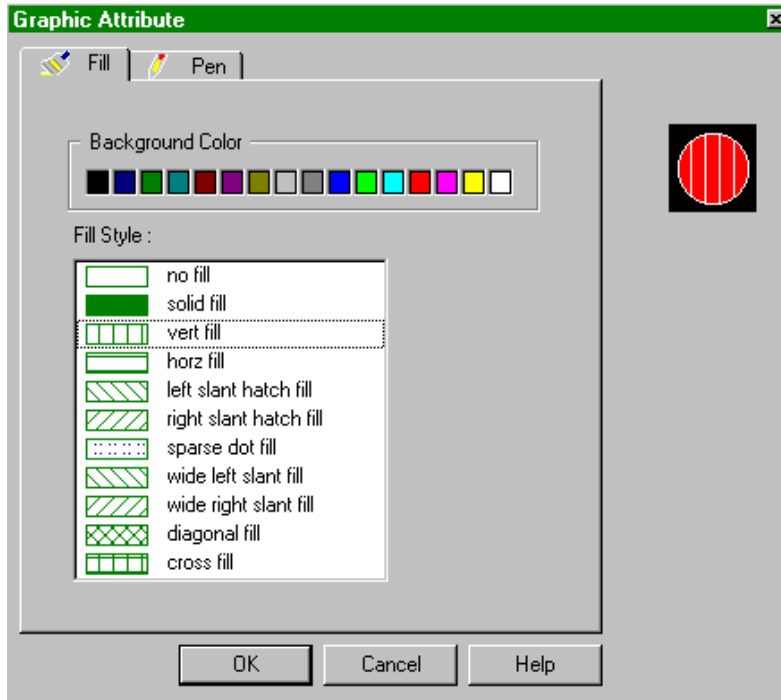
The pen and fill styles control the appearance of lines and region and are selectable from the function toolbars. The line style controls the appearance of vectors, arc, polygon and circle borders. TOUCH ASSIST IV totally supports 6 different line styles.

The fill style controls the appearance of filled regions. TOUCH ASSIST IV totally supports 10 different fill styles. The pen color will be used to draw the graphic object border and fill pattern. The fill color will be used to fill the gap within the filled pattern. The current selections will be displayed on the function toolbar (drawing tool attribute window). The *Pen* and *Fill* selections will only affect the graphic images.

*Example: Setting the pen and fill style*

Step 1. Select the *New* option from *File* menu.

Step 2. Click  button from function toolbars, the *fill/pen pattern* tabbed dialog box appears.



Step 3. Select the *Vertical Fill* option within *Fill List Box*.

The *demo box* located at the upper right corner of the dialog box will reflect the changes of current graphic attributes.

Step 4. Click the *Pen* tab to show the *Pen Style* dialog box.

Step 5. Select the *Solid Pen*. In order for the shading option to function, the solid line style option must be active.

Step 6. Click the *OK* button to end the selection. The *drawing tool attribute* window will display the current selections.


Step 7. Create any graphic object on the design window to see the result.

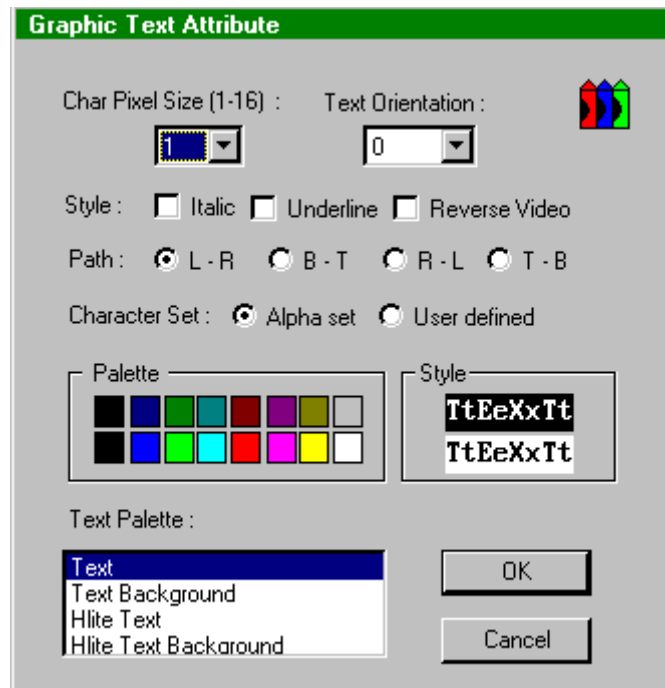
### 5.4.13 Graphic Text Attributes


It is possible to alter the visual appearance of text. The Font set, color, size, orientation, as well as such attributes as underline, italics, and reverse video may be changed. String path, how successive characters are placed relative to one another, may also be changed.

*Example: Setting the graphic text attributes*

Step 1. Select the *New* option from *File* menu.

Step 2. Click the  button from the function toolbars, the *Text Attribute* dialog box appears. *Fonts* are referred to by the *Char Set*. A character is scaled in Deeco serial terminals by pixel replication. *The size* of the pixel is selectable as an integral multiplier of the base pixel size. *Orientation* refers to character and string rotation, which is in multiples of 45 degrees. *Path* refers to successive character placement and may be left-to-right, bottom-to-top, right-to-left, or top-to-bottom. *Palette* can be used to define the text foreground and background color.



- Step 3. Select the graphic text attributes, the *demo box* will reflect all the changes.
- Step 4. Click **OK** button to exit the dialog box or click **Cancel** button to abort the process.
- Step 5. Click  button from the function toolbars to define a graphic text string with all the new attributes.


### 5.4.14 Edit and Move

The *edit and move* modal functions are used to resize and reposition the graphic objects, and buttons on the design window.

### 5.4.15 Resize

To *resize* an object, select the edit function and move the mouse cursor on the desired object and click the left mouse button. The *resize handles* will appear at various points on the object. The number of handles depends on the type of object selected. When the mouse cursor is placed on any of these resize handles and the left button is pressed, dragging the mouse will resize the object.

#### *Example: Resize a object*


- Step 1. Select the *New* option from **File** menu.
- Step 2. Define a rectangle as described in the rectangle example.
- Step 3. Click  button from the function toolbars.
- Step 4. Place the mouse pointer within the area of the rectangle and click the left button. The resize handles will appear on each corner of the rectangle.
- Step 5. Click and drag one of the resize handles to modify the size of the rectangle. Once the left button of the mouse is released, the rectangle will be positioned at that new coordinate.

### 5.4.16 Single Move

*Single move* modal operation is used to move a single graphic object or button on the design window.

Moving object starts with identifying them. For single object moves, the object is selected by moving the mouse cursor onto the object and pressing the left button. The object will be identified by a displaying the resize handles. By dragging the mouse with the left button pressed, the object can be repositioned to any desired location. Releasing the left mouse button will leave the moved object permanently in their new position.

***Example: Single Move Function***


- Step 1. Select the *New* option from *File* menu.
- Step 2. Create a rectangle as described in the rectangle example.
- Step 3. Click  button from the function toolbars.
- Step 4. Place the mouse pointer within the area of the rectangle and click the left button.
- Step 5. Click and drag the object with the mouse to the desired location. A dotted line representation of the object will appear.
- Step 6. Once the mouse button is released, the object will be positioned.

### 5.4.17 Group Move

*Group Move* modal operation is used to move graphic objects and buttons on the design window.

Moving objects starts with identifying them. Groups of objects are selected by moving the cursor to a point above and to the left of the items and pressing the left mouse button. By dragging the mouse, a dashed box is created which can be used to encompass the desired objects. The mouse cursor can be moved into the box and the left mouse button pressed. By dragging the mouse with the left button pressed, the objects can be repositioned to any desired location. Releasing the left mouse button will leave the moved objects permanently in their new position. When moving a group of objects, only those contained entirely inside the dashed box will be moved. All other objects will be left unchanged.



***Example: Group Move Function***

- Step 1. Select the *New* option from *File* menu.
- Step 2. Create two rectangles as described in the rectangle example.
- Step 3. Click  button from the function toolbars.
- Step 4. Place the mouse above and to the left of the region to be moved.
- Step 5. Click and drag the mouse until a dotted rectangle encompasses the objects to be moved. At this time, release the mouse button to define the region.
- Step 6. Place the mouse pointer within the any selected objects.
- Step 7. Click and drag the object with the mouse to the desired location.
- Step 8. Once the mouse button is released, the objects will be positioned.

### 5.4.18 Vectors

Two types of vectors are supported: random and orthogonal. Random vectors can be any orientation. Orthogonal vectors are always parallel the X and Y axes. The methods for drawing either vector type are the same, though the results will be different.



#### *Example: Drawing a Vector*

- Step 1. Click  button to select the pen style and color.
- Step 2. Click  button from the function toolbars.
- Step 3. Move the mouse cursor in the design window to the desired start point, and click the left mouse button.
- Step 4. Move the mouse to the desired end point and click the left button again to complete the process or click the right mouse button to abort the process.

### 5.4.19 Arcs

Arcs are sections of circles and are defined by three points.



#### *Example: Drawing an Arc*

- Step 1. Click  button to select the pen style and color.
- Step 2. Click  button from the function toolbars.
- Step 3. Move the mouse cursor to the desired positions and click the left mouse button. The first position will define one end point of the arc.
- Step 4. Repeat Step 3 for points 2 and 3 of the arc. The second position will define the opposite end point of the arc. The last position will define any given point on the curve of the arc itself. The arc will be drawn upon the specification of the third point.

### 5.4.20 Circles

Circles may be filled or unfilled. Unfilled circles will use the any line style for the border but filled circles will always use a solid border.



#### *Example: Drawing a Circle*

- Step 1. Click  button to select the pen/fill style and color.
- Step 2. Click  button from the function toolbars.
- Step 3. Move the mouse to the center of the desired circle, press and hold down the left mouse button.
- Step 4. Drag the mouse with the left button held down. An ellipse with current pen style border will appear and will move as the mouse is moved.
- Step 5. Release the mouse button. The ellipse will become a circle with the selected attributes. The radius of the resulting circle is always the minor (smaller) axis of the ellipse.

### 5.4.21 Rectangles

Rectangles may be filled or unfilled. Unfilled rectangles will use the current pen style for the border but filled rectangles will always use a solid border.



#### *Example: Drawing a Rectangle*

- Step 1. Click  button to select the pen/fill style and color.
- Step 2. Click  button from the function toolbars.
- Step 3. Move the mouse to the corner of the desired rectangle. Press and hold the left button of the mouse while dragging the mouse. An outline of the desired rectangle will be displayed.
- Step 4. Release the left button of the mouse to define the rectangle with the selected attributes.

### 5.4.22 Polygons

Polygons may be filled or unfilled. Unfilled polygons will use the current pen style for the border but filled polygons will always use a solid border. You may define up to 32 vertices. After 32 vertices are selected, the polygon will automatically close itself.

#### *Example: Drawing a Complex Polygon*

- Step 1. Click  button to select the pen/fill style and color.
- Step 2. Click  button from the function toolbars.
- Step 3. Polygons are specified by their vertices. To specify a vertex move the mouse to the desired location and click the left mouse button.
- Step 4. Starting with the second vertex, edges joining the two last vertices will appear as new vertices are specified.
- Step 5. To complete the polygon with the selected attributes, you can either double click the left mouse button. This will draw an edge from the last vertex to the first vertex or click the right mouse button to abort the process.

### 5.4.23 Place Button

*Place Button* function creates a button placement(positioning) on the current page and displays the placement of the button image on the design window. Once a button has been placed on the page its function and appearance may be defined. The design and development of touch menu systems is discussed in greater detail in the *Define Button* section.


When actuated, *Place Button* invokes a dialog box. Within the dialog box is the rough placement grid. This grid represents the design window and its cells are possible button locations. The number of cells is a function of the default button size. *Button size* is determined by the *template* function. Clicking a grid cell places a button of the current default size at a corresponding location in the design window. (Clicking again at the same location will erase the button.) The button may be moved or resized later with the *edit* and *move* functions. The button placement dialog box gives access to another dialog box, the *template editor*. The *template*, as mentioned above, is the default button size. It is characterized by the rectangle of the resulting button. The template editor allows the rectangle to be specified.

The button placement dialog box also displays button resource information. Many Deeco serial terminals allow only a fixed number of button regions. A button region is defined by position as

well as shape. Button regions may be used on multiple pages, and always have the same position and shape.

### *Example: Create a Button Image with Default Dimensions*


Step 1. Select the *New* option from *File* menu.

Step 2. Click  button on the function toolbars, the *Assign Button Location* dialog box appears.

Step 3. Click one square from the grid located within the *Assign Button Location* dialog box.

Step 4. Click the *OK* button. At this point, the button image will be created on the design window.


### 5.4.24 Button Size

Sizing of button, if the default is not sufficient, may be accomplished by editing the button. Click the  button from function toolbars and then select the button for editing by clicking on it. The *resize handles* will appear enabling the button to be re-sized. Move the mouse to one of the resize handles, click and drag to re-size the button.

### *Example: Changing the Size of an Existing Button*

Step 1. Select the *New* option from *File* menu.

Step 2. Create a button image on the design window.

Step 3. Click the  button from the function toolbars.

Step 4. Click the target button with the mouse. The button will be highlighted with blocks at each corner.

Step 5. Click and drag one of the corner blocks until the button is of the desired dimension then release the mouse button.

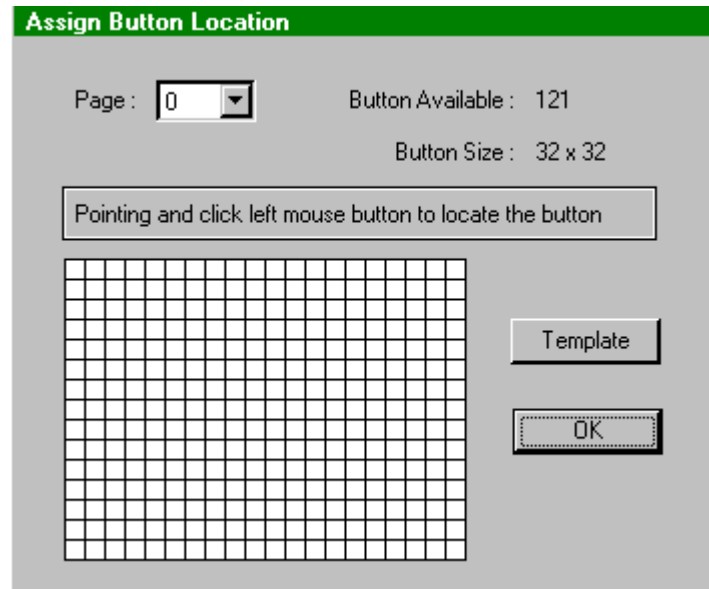
### 5.4.25 The Template

If a new default size is desired, the template defining the default may be changed. The *Template editor* is entered through the *Template* button in the *Assign Button Location* dialog box. The size of the default may be defined by creating a box in the work area of the desired size. The box is drawn by moving the mouse to a convenient point representing the upper left corner, pressing the left mouse button and dragging the mouse to the lower right corner. The height and width is shown in pixel size and updated as the box is defined. Release the mouse button when the desired size is obtained.

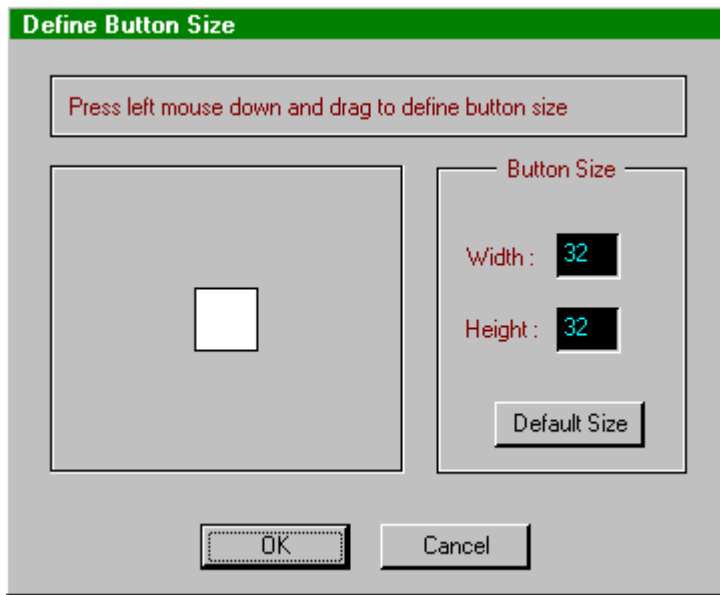
#### *Example: Create a Button using Template Dimensioning*

Step 1. Select the *New* option from *File* menu.

Step 2. Click the **B** button from function toolbars, the *Assign Button Location* dialog box appears.



Step 3. Click the *Template* button, the *Define Button Size* dialog box appears.





- Step 4. Move the mouse into the work area to the left of the *Button Size* window.
- Step 5. Click and drag the mouse until you create a button with a width and a height of 80 pixels. The new button dimensions can be observed in the button size window.
- Step 6. Click the *OK* button to exit the *Define Button Size* dialog box.
- Step 7. Select two adjacent boxes from the grid located in the *Assign Button Location* window.
- Step 8. Click the *OK* button to exit the *Assign Button Location* dialog box. The design window will display two button images with new button size.

### 5.4.26 Graphic Text

See *Graphic Text Attributes* for detail.

#### *Example: Drawing Graphical Text*

- Step 1. Click the  button from the function toolbars to select graphic text attributes.
- Step 2. Click  button from the function toolbars.

- Step 3. Move the mouse to the start position (lower left) of the desired text string and click the left mouse button. The *Text String* dialog box will appear where the ASCII text may be entered.
- Step 4. Enter the following text string: *This is an example of the text function.*
- Step 5. Click the *OK* button to draw the text in the design window, or click the *Cancel* button to abort the operation without displaying any text.
- Step 6. *You can edit the existing text by pointing and double click the left mouse button.*


### 5.4.27 Bitmap

The *Bitmap* function allows you to embedded a bitmap within the design window and TOUCH ASSIST IV can download the bitmap to the serial terminal. You can use third-party utilities (i.e. Paint Brush, Image Editor) to build the bitmap file. Currently, TOUCH ASSIST IV only support *BMP* file format.

### 5.4.28 Scan Line

Each scan line consists of consecutive bytes which are representing the pixels in the scan line. The number of bytes representing a scan line depends on the color format and the width, in pixels, of the bitmap. If necessary, a scan line must be zero-padded to end on a 32-bit boundary (4 bytes). So this will show the dark pixels in the displaying picture. *In order to eliminating this problem, for 256 colors, the size of the width, in pixels, should always sit on the boundary which can be divided by 4 and divided by 8 for 16 colors.* TOUCH ASSIST IV only supports 16 colors and 256 colors bitmap file.

### 5.4.29 How to embedded a bitmap


- Step 1: Click  button from the function toolbars, the *Open File* dialog box appears.
- Step 2: Select the bitmap file name.
- Step 3: Click the *OPEN* button to show the bitmap or click the *CANCEL* button to cancel the process. *The bitmap always show at the left upper corner within the design window. Drag the bitmap where you want it.*

### 5.4.30 Erase

The *Erase* function is a modal function that operates on graphic objects and buttons. Objects and buttons are deleted and cease to be displayed when erased. **CAUTION: THERE IS NO UNDO!**

To erase an object, select the erase function and move the mouse cursor to the object to be erased. Clicking the left mouse button will erase the object. Care must be taken when erasing an object which overlaps or is overlapped by another object. The mouse cursor should be in a non overlapped region of the desired object before it can be clearly identified. If this is not possible, such as in the case of completely overlapped objects, it is suggested that the items be moved to isolate the desired object of erasure.



#### *Example: Erase Function*

- Step 1. Select the *New* option from *File* menu.
- Step 2. Create a circle as described in the circle example.
- Step 3. Click the  button from the function toolbars.
- Step 4. Place the mouse pointer within the area of the circle and click the left mouse button. This will cause the circle to be erased from the design window.
- Step 5. Choosing any other function or menu item will deactivate the *Erase* function.

### 5.4.31 Refill

When editing a filled graphic object, it is possible to change the fill palette and style in the filled area.

#### *Example: Refill Function*

- Step 1. Select the *New* option from *File* menu.
- Step 2. Create a circle as described in the circle example.
- Step 3. Click  button from function toolbars, the *fill/pen pattern* tabbed dialog box appears.
- Step 4. Select the new fill style and color, click *OK* button.
- Step 5. Click  button from the function toolbars.

Step 6. Place the mouse pointer within the area of the circle and click the left mouse button. This will cause the circle to be repainted with the new selected fill style from the design window.

Step 7. Choosing any other function or menu item will deactivate the *Refill* function.


### 5.4.32 Fine Move

The Fine Move function can be used to accurately place an graphic object to the pixel level (button will be placed at the touch level) The object is selected by clicking it. The four arrow keys of the keyboard may then be used to move the object up, down, left, or right. The cursor moves with the object and the mouse position reported in the status bar is maintained so the position can be monitored during the move.


#### *Example: Fine Move Function*

Step 1. Select the *New* option from *File* menu.

Step 2. Create a rectangle as described in the rectangle example.

Step 3. Click the  button from the function toolbars.

Step 4. Place the mouse pointer within the area of the rectangle and click the left mouse button.

Step 5. Click  button from the function toolbars.

Step 6. Use keyboard direction keys (up, down, left, right) to move the rectangle.

Step 7. Choosing any other function or menu item will deactivate the *Fine Move* function.

## 5.5 The Status Bar



The *Status Bar* displays information about the design window. The mouse position within the design window which is helpful for precision placement of objects in the design window, the selected serial terminal, the page number identifying the current page within the design window and some important keyboard information.

Context sensitive help also appears on the status bar. As functions from the *Function Toolbars* or items from the *Menu Bar* are selected, messages are displayed on the status bar describing options or required actions to complete or modify the function.

## 5.6 The Host Response Status Bar

The *Host Response Status Bar* is used to display the information transmitted from the attached Deeco serial terminal. While TOUCH ASSIST IV is in test mode, the host responses of the activated buttons will also display here.

## 6.0 Application Development

The application generation process centers around the target terminal of a TOUCH ASSIST IV design and the creation of touch menus, or pages. The selection of the target terminal implicitly selects the screen dimension and insures the translation of the TOUCH ASSIST IV design to proper output format.

A *page* is a group of buttons collectively displayed on the target terminal screen and referred to by a single numeric ID, *the page number*. The page number is selected by the page buttons from the function toolbars or select the from the menu bar. The contents of the page is displayed in the design window after page changed.

### 6.1 Touch Menu Generation

*Touch menu*, or *button page*, generation starts with the layout of the buttons on a page. Pages are referenced by a numerical ID, starting at zero (0). Typical applications start with page one (1) reserving page 0 for special use (many Deeco serial terminals attach special features to page 0). Each page contains a different menu and, perhaps, graphic images.

## 6.2 Define Button

The *place button* function will let you place as many button images as the page requires. The button image only defines the shape, location and the size, it has no button function. The internal of a button is comprised of one or more states; each state contains *a label*, *a host response*, and *a local response*. The label is used as the visible text identifier of the button, the host response is a message sent over the communication link from the host system when the button is actuated, and the local response is a command sequence replayed internally when the button is actuated. Upon actuation the button automatically moves to the next state displaying the new label. States may also be assigned different visual attributes. *A button will not be function until the label, host response and local response are all defined.*

## 6.3 Button Label

To define the label, click in the label edit field in the *Button Response* dialog box. The text cursor will allow the entry of a text string which will be the label for the state. Multiple line labels are defined by delimiting each line with a carriage return generated by the key combination of *SHIFT-6* then *SHIFT-M*. Labels are automatically centered, left to right and top to bottom.

## 6.4 Button Host Response

The host response is entered similar to the label. Click on the host edit field in the *Button Response* dialog box. Enter the text of the response from the keyboard. Control codes and codes with the eight bit set may be embedded by using a backslash preceding a pair of ASCII hexadecimal digits. Control codes may also be included by using ^ preceding the appropriate letter. Characters which must be preceded with a backslash include: \ ; ^ | /.

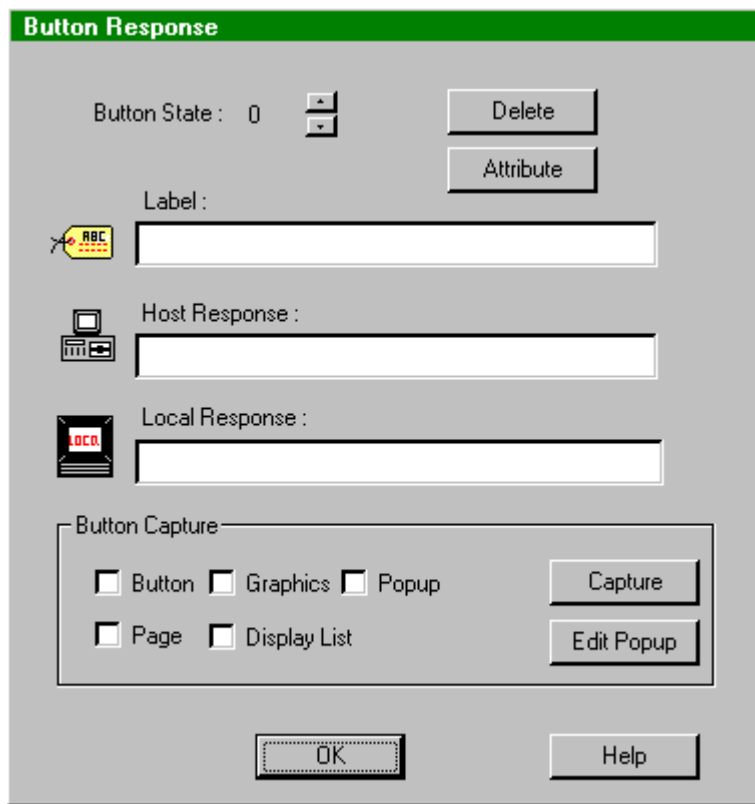
## 6.5 Button Attributes

The button attributes only affect the visual appearance of the button. It includes the label foreground and background color, label orientation, button background filled style and so on. TOUCH ASSIST IV provides an easy way for you to design your button. You only need to do is clicking and selection, all the internal complexion works are handled by TOUCH ASSIST IV.

**Example: Create a Button with Button Attribute**

Step 1. Select the *New* option from *File* menu.

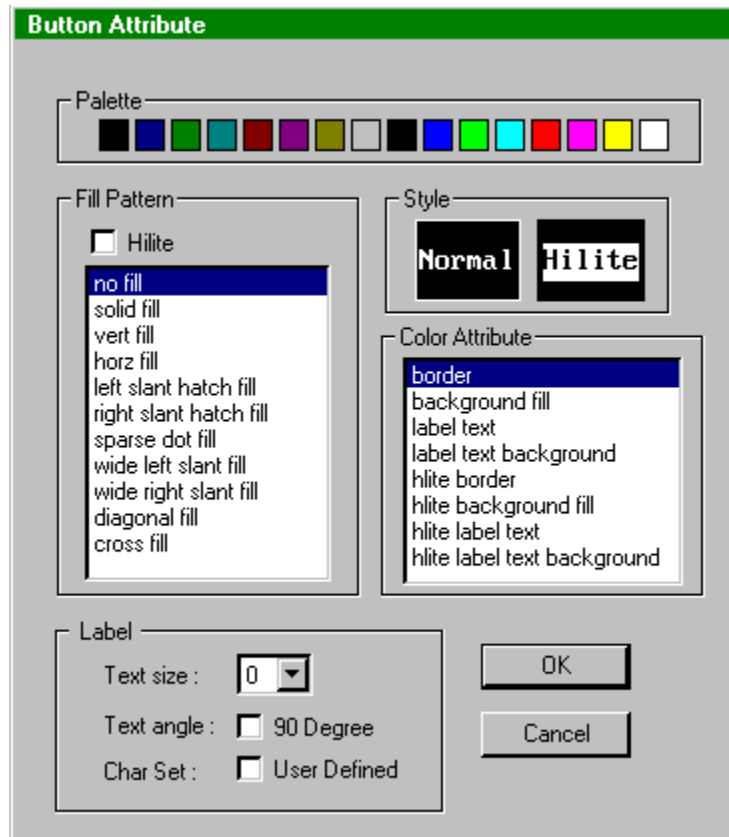
Step 2. Create a button image on the design window, move mouse to the button image and double click the left mouse button, the **Button Response** dialog box appears.



Step 3. Click *Label* edit field and enter: *One*.

Step 4. Click *Host Response* edit field and enter: *One*.

Step 5. Click the *Attribute* button, the *Button Attribute* dialog box appears.



Step 6. Using the *Color Palette* buttons and click the item within *Color Attribute* list box to set button colors, text label color and so on. The *demo style box* will reflect all the changes of current button attributes.

Step 7. Select the *Vertical fill* within the *Fill Pattern* list box to set button background fill style.

Step 8. Click the *Hilite* box then select the *Cross fill* under the *Fill Pattern* list box, the *Cross fill* pattern will be used to fill the button background when it has been actuated.

Step 9. Click *OK* button to exit the *Button Attribute* dialog box.

Step 10. Click *OK* button to exit the *Button Response* dialog box.

Step 11. Select the *Test* option from *Touch* menu.

Step 12. Click button image to see the button attributes changed and the host response message *One* will be displayed on the *Host Response Status Bar*.

Step 13. Select the *Test* option from *Touch* menu to exit the test mode.

## 6.6 Button Local Response

A local response is a sequence of Deeco serial terminal compatible commands which are replayed through the serial terminal's command parser as if the commands had come from the host. Any command which can be sent from the host is possible to embed in a local response. The local response may be entered in the same fashion as the label or host message. To embed complex command sequences, TOUCH ASSIST IV has provided five *button capture* options.

## 6.7 Capture Button

*Capture Button* embeds a command in the local response which couples the current button to another button, perhaps on another page. When the current button is pressed in the target terminal, the coupled button will also appear to be pressed. This has the effect of changing the coupled button's state. *In the test mode, if the coupled button is on the current page, its label will be updated and the host message will be sent but its local response will not be executed.*

### *Example: Creating a Button with Capture Button*

Step 1. Select the *New* option from *File* menu.

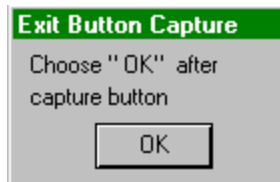
Step 2. Create two button images on the design window, move mouse to the first button image and double click the left mouse button, the *Button Response* dialog box appears.

Step 3. Click *Label* edit field and enter: *One*.

Step 4. Click *Host Response* edit field and enter: *One*.

Step 5. Click the *Button* option box from *Button Capture*.

Step 6. Click the *Capture* button, the *Exit Button Capture* dialog box appears.



- Step 7. Moving the mouse to the second button image and click the left mouse button to end the selection. Click the **OK** button to exit the *Exit Button Capture* dialog box, the *Button Response* dialog box reappears. The command for the captured button are automatically entered into the local response edit field.
- Step 8. Click the **OK** button to exit the *Button Response* dialog box.
- Step 9. Move mouse to the second button image and double click the left mouse button, the *Button Response* dialog box appears.
- Step 10. Click *Label* edit field and enter: *Two*.
- Step 11. Click *Host Response* edit field and enter: *Two*.
- Step 12. Click **OK** button to exit the *Button Response* dialog box.
- Step 13. Select the *Test* option from *Touch* menu.
- Step 14. Click first button and the host response message *One* and *Two* will both be displayed on the *Host Response Status Bar*.
- Step 15. Select the *Test* option from *Touch* menu to exit the test mode.

## 6.8 Capture Page

*Capture Page* allows you to couple the current button to another page of buttons. When the current button is pressed in the target terminal, this will cause the current button page to be erased and the new page to appear.

*Example: Create a Button with Capture Page*

- Step 1. Select the *New* option from *File* menu.
- Step 2. Create a button image on the design window, move mouse to the button image and double click the left mouse button, the *Button Response* dialog box appears.

- Step 3. Click *Label* edit field and enter: *One*.
- Step 4. Click *Host Response* edit field and enter: *One*.
- Step 5. Select the *Page* option box from *Button Capture*.
- Step 6. Click the *Capture* button , the *Page Number* dialog box appears.
- Step 7. Enter a value of 1 then click the *OK* button. Any value from **0 to 119** can be selected. The change page command is automatically entered into the local response edit field.
- Step 8. Click the *OK* button to exit the *Button Response* dialog box.
- Step 9. Select the *Test* option from *Touch* menu.
- Step 10. Click the button with the left mouse button, the design window will change to the page 1 and the page number in the *Status Bar* will display the page number 1.
- Step 11. Select the *Test* option from *Touch* menu to exit the test mode.

## **6.9 Capture Graphics**

*Capture Graphics* embeds a sequence of graphic commands in the local response of the button. *We recommend that display lists be used to call up graphics. If the serial terminal unit does not possess an auxiliary memory, you can embed graphics within button response.*

*Example: Create a Button with Capture Graphics*

- Step 1. Select the *New* option from *File* menu.
- Step 2. Create a button image on the design window, move mouse to the button image and double click the left mouse button, the *Button Response* dialog box appears.
- Step 3. Click *Label* edit field and enter: *One*.
- Step 4. Click *Host Response* edit field and enter: *One*.
- Step 5. Select the *Graphics* option box from *Button Capture*.
- Step 6. Click the *Capture* button, the *Exit Button Capture* dialog box appears.



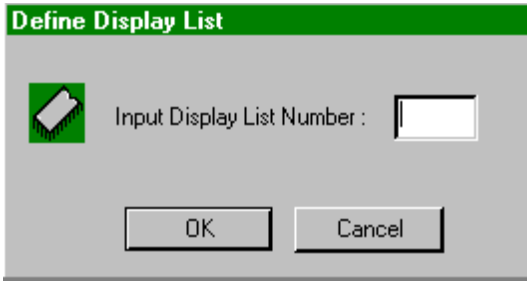
- Step 7. Define circle as example and click the **OK** button. The **Button Response** dialog box reappears. The command for the defined circle is automatically entered into the local response edit field.
- Step 8. Click the **OK** button to exit the **Button Response** dialog box.
- Step 9. Select the **Test** option from **Touch** menu.
- Step 10. Click the button with the mouse, the design window will display the defined circle.
- Step 11. Select the **Test** option from **Touch** menu to exit the test mode.

## 6.10 Capture Display List

**Capture Display List** embeds a display list into the local response of the button. The display list is specified by its numeric ID. These options cover most response requirements. Except for the **Pop-up** option, all options may be embedded in the same response. If the Pop-up button is chosen no other captures can be selected.

### *Example: Create a Button with Capture Display List*

- Step 1. Select the **New** option from **File** menu.
- Step 2. Follow steps 1-6 from *the example of Define List* to assign a file associated with a display list number.
- Step 3. Create a button image on the design window, move mouse to the button image and double click the left mouse button, the **Button Response** dialog box appears.
- Step 4. Click **Label** edit field and enter: *One*.
- Step 5. Click **Host Response** edit field and enter: *One*.
- Step 6. Select the **Display List** option box from **Button Capture**.
- Step 7. Click the **Capture** button, the **Define Display List** dialog box appears.



- Step 8. Enter the *display list number* which you select in step 2 then click the **OK** button. The execution of display list command for the selected display list number is automatically entered into the local response edit field.
- Step 9. Click the **OK** button to exit the *Button Response* dialog box.
- Step 10. Select the *Test* option from *Touch* menu.
- Step 11. Click the button image with the left mouse button, the contents of the file which associated with the display list number will be executed and displayed in the design window.
- Step 12. Select the *Test* option from *Touch* menu to exit the test mode.

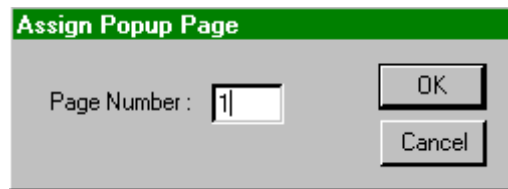
### 6.11 Capture Pop-Up Menu

*Pop-up menus* are touch elements which mimic the Windows style pull down menus. Capture Pop-up embeds the necessary commands to initiate a Pop-up. The Pop-up itself is defined by a user selected page number and a sequence of pop-up elements (the items of the pop-up). To conserve memory and avoid terminal operational difficulties; **ALWAYS SELECT THE LOWEST UNUSED PAGE TO DISPLAY THE POP-UP MENU**. See examples section for a more detailed explanation. Capture will invoke a dialog box to specify the page number and then a dialog box to define the pop-up elements.

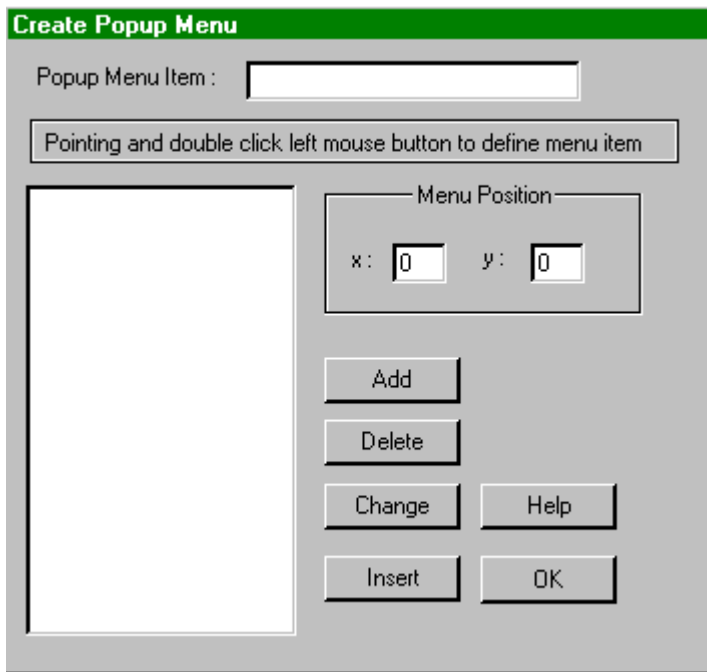
A pop-up item is added to the list of items by entering the text of the item as it will appear on the target screen and clicking the *Add* button. You can use the *Delete* button to erase a menu item, the *Change* button to rename a menu item, and the *Insert* button to change the order of the menu items. The host message and local response of each pop-up item are specified in an abbreviated response dialog box entered by double clicking an item. The procedure of defining the pop-up response is similar to the button response without the label field edit feature.

**Example: Create a Button with Capture Popup Menu**

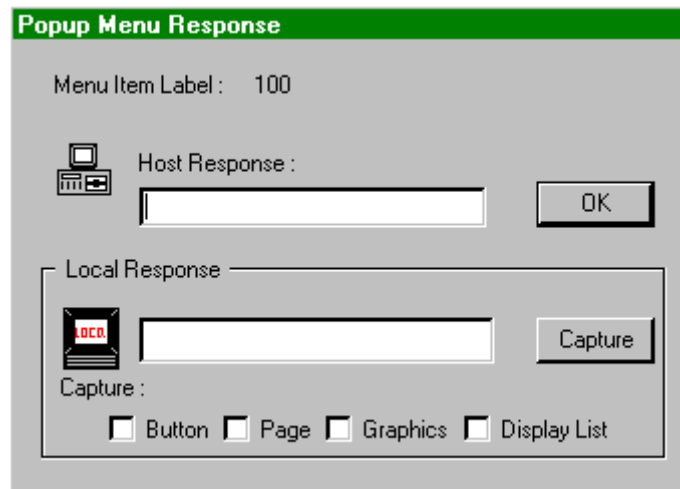
- Step 1. Select the *New* option from *File* menu.
- Step 2. Create a button image on the design window, move mouse to the button image and double click the left mouse button, the *Button Response* dialog box appears.
- Step 3. Click *Label* edit field and enter: *One*.
- Step 4. Click *Host Response* edit field and enter: *One*.
- Step 5. Select the *Pop-up* box from the *Button Capture*.
- Step 6. Click the *Capture* button, the *Assign Popup Page* dialog box appears.



- Step 7. Enter a value of 1 for the *Page Number* and click the *OK* button. The *Create Popup Menu* dialog box appears.



- Step 8. Click the **Popup Menu Item** edit field and enter the word: *Popup1*. Click the **Add** button, the text *Popup1* will appear inside the list box.
- Step 9. Click the **Popup Menu Item** edit field and enter the word: *Popup2*. Click the **Add** button, the text *Popup2* will appear inside the list box.
- Step 10. Select the *x* edit field under **Menu Position** and enter a value of 0.
- Step 11. Select the *y* edit field under **Menu Position** and enter a value of 0. The **default position (0,0)** will show the popup menu at the upper right corner of the button.
- Step 12. Double click the word *Popup1* within the list box. The **Popup Menu Response** dialog box appears.



Step 13. Click **Host Response** edit field and enter: *Popup1*, click the **OK** button.

Step 14. Double click the word *Popup2* within the list box.

Step 15. Click **Host Response** edit field and enter: *Popup2*, click the **OK** button.

Step 16. Click the **OK** button within the **Create Popup Menu** dialog box. The **Button Response** dialog box reappears.

Step 17. Click the **OK** button to exit the **Button Response** dialog box.

Step 18. Select the **Test** option from **Touch** menu.

Step 19. Click the button with the mouse. At this time, the design window will show a popup window with the defined menu.

Step 20. Select the **Test** option from **Touch** menu to exit the test mode.

**Example: Edit a Button with Capture Popup Menu**

Step 1. Create a button as described in the example of *creating a button with capture popup menu*.

Step 2. Moving mouse to the button image and double click the left mouse button, the **Button Response** dialog box appears.

Step 3. Click the **EditPop** button, the **Create Popup Menu** dialog box appears.

Step 4. Select the menu item inside the list box, the menu item text will show in the *Popup Menu Item* edit field.

Step 5. You can edit the text and click the *Change* button to change the item name, click the *Delete* button to erase the menu item or click the *Insert* button first then select a new position within the list box to put the text in the new position.

Step 6. Click *OK* button to exit the *Create Popup Menu* dialog box.

Step 7. Click *OK* button to exit the *Button Response* dialog box.

## **6.12 Button with Multistates**

Button responses can be programmed in such way that each successive touch will send a different host message and local response from a list of sequential states. In addition, each state may relabel the button if desired, or change the button attributes. Up to 16 states may be defined for any button. The button will initially be labeled with the label specified by state 0. When it is actuated, the host and local responses will be those of state 0. The button then will be relabeled with the next state's label and all the new attributes. When the final state is actuated, the state will return to 0.

### **Example: Create a Multistates Button with Different Attributes**

Step 1. Select the *New* option from *File* menu.

Step 2. Create a button image on the design window.

Step 3. Double click the left mouse button on the button image, the *Button Response* dialog box appears.

Step 4. Click the *Attribute* button to set the button attribute.

Step 5. Click *Label* edit field and enter: *One*.

Step 6. Click *Host Response* edit field and enter: *One*.

Step 7. Select the *Graphic* box from *Button Capture*.

Step 8. Click the *Capture* button.

Step 9. Create a circle on the design window.

Step 10. Click the *OK* button to exit the *Exit Button Capture* dialog box.

- Step 11. Click the **Down Arrow** button at the **Button State Spin Button**. Note that the button state has changed from 0 to 1 and all labels and responses have been cleared.
- Step 12. Click the **Attribute** button to set the button attribute.
- Step 13. Click **Label** edit field and enter: *Two*
- Step 14. Click **Host Response** edit field and enter: *Two*
- Step 15. Select the **Popup** box from **Button Capture**.
- Step 16. Click the **Capture** button.
- Step 17. Enter a value of 1 for the **Assign Popup Page** and click the **OK** button.
- Step 18. Select the **Popup Menu Item** and enter the word: *Popup1*. Click the **Add** button.
- Step 19. Select the **Popup Menu Item** and enter the word: *Popup2*. Click the **Add** button.
- Step 20. Select the *x* edit field under the **Menu Position** and enter a value of 0.
- Step 21. Select the *y* edit field under the **Menu Position** and enter a value of 0.
- Step 22. Double click the word *Popup1* within the list box, the **Popup Menu Response** dialog box appears.
- Step 23. Click **Host Response** and enter: *Popup1* and click the **OK** button.
- Step 24. Double click the word *Popup2* within the list box, the **Popup Menu Response** dialog box appears.
- Step 25. Click **Host Response** and enter: *Popup2* and click the **OK** button.
- Step 26. Click the **OK** button to exit the **Create Popup Menu** dialog box.
- Step 27. Click the **Down Arrow** button at the **Button State Spin Button**. Note that the button state has changed from 1 to 2 and all labels and responses have been cleared.
- Step 28. Click the **Attribute** button to set the button attribute.
- Step 29. Click **Label** edit field and enter: *Three*.
- Step 30. Click **Host Response** edit field and enter: *Three*.

- Step 31. Select the *Page* box from the *Button Capture*.
- Step 32. Click the *Capture* button, the *Page Number* dialog box appears.
- Step 33. Enter a value of 4 for the *Page Number* and click the *OK* button.
- Step 34. Click the *OK* button to exit the *Button Response* dialog box.
- Step 35. Using *GoTo* option from *Page* menu to change current page to page 4.
- Step 36. Create a button image on the design window at page 4.
- Step 37. Double click the left mouse button on the button image.
- Step 38. Click *Label* edit field and enter: *Return*
- Step 39. Select the *Page* box from *Button Capture*.
- Step 40. Click the *Capture* button, the *Page Number* dialog box appears.
- Step 41. Enter a value of 0 and click the *OK* button.
- Step 42. Click the *OK* button to exit the *Button Response* dialog box.
- Step 43. To test the buttons, select *Test* option from *Touch* menu and click the button with the mouse.

## 7.0 Online Help

TOUCH ASSIST IV provides *Online Help* to assist you in designing the application. You can use the following ways to obtain Help.

- (1) Press the *FI key* to view a list of Help topics .
- (2) When you are using a dialog box that has a Help button, click the dialog button to display information about working with the dialog box.
- (3) Choose the Help menu to display a list of Help commands.

## 7.1 Technical Support

Deeco offers a variety of support options to help you get the most from Touch Assist IV. Before contacting the technical support, please try to resolve your problems by referring to this manual and the serial terminal manual.

### E-mail

You can ask questions and receive detail answers from the Technical Support via CompuServe. Just send e-mail to the following account.

From CompuServe account: LDTECHSUPPORT@COMPUSERVE.COM

### Internet

Visit our web site at <http://www.deeco.com>

### Fax

You can fax the questions or comments. Address the fax to "Technical Support". The fax number is:  
510-489-3500

### Telephone

You can reach the Technical Support by phone between 8:00 A.M. and 5:00 P.M.; Monday through Friday with phone number: 510-471-4700

### **Bulletin Board Service**

You can use the service to download samples and submit files. The protocol is 9600 baud, 8 data bits, 1 stop bit, no parity

BBS phone number: 510-471-5402

### **Mail**

You can send your mail to the following address.

**Lucas Control Systems, Deeco  
31047 Genstar Road  
Hayward, California U.S.A. 94544-7831**

## **8.0 Application Integration**

Once the application has been found to meet certain minimum functionality goals, it may be incorporated into the host system. The menus, graphics, and display lists resulting from the design may be included in the software of the host, or if the application has been carefully designed to make full use of display lists, it may be downloaded into the non-volatile memory option of the target terminal. Regardless of where the application physically resides, it must be invoked at system initialization. System initialization is typically a power-up of all system components. If the application information is resident in the host, it may be downloaded from the host to the target at the host's convenience. If the application is pre-loaded into the target's non-volatile memory in the form of a display list, the unit can be configured to automatically invoke the lists and self-initialize.

Most Deeco serial terminals which offer display lists also offer the ability to automatically execute a list upon power-up. This *auto-configure* feature is usually accessible from the set-up function of the target terminal. *List ID 0* is usually reserved for auto-configure. If an application is structured so that it is partitioned into lists, and list 0 is dedicated to controlling an initialization then the application may be embedded within the non-volatile memory option of the Deeco serial terminals and auto-configure may be used to invoke the application.

Two other means of generating a usable form of a TOUCH ASSIST IV design exist. The *Output* menu allows a TOUCH ASSIST IV design to be translated into a command stream and placed in a file. The file can be unformatted and used at run-time as input to a host software system and downloaded to the target device.

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