UniOP Presentation Guide for Distributors

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Introduction

This Guide is designed to assist you in the presentation of the UniOP Designer for Windows software program. It is a step by step instruction process that helps to get all the information across to the prospective customer while demonstrating the Designer for Windows program.
This is just a guide for assistance, it is not written in stone, as we all know that variations in the actual presentation depend on the customer and application. For a more detailed description of a particular subject in this document, please refer to the Designer for Windows software manual or to the Tech Notes.

Initial Presentation of the Designer for Windows

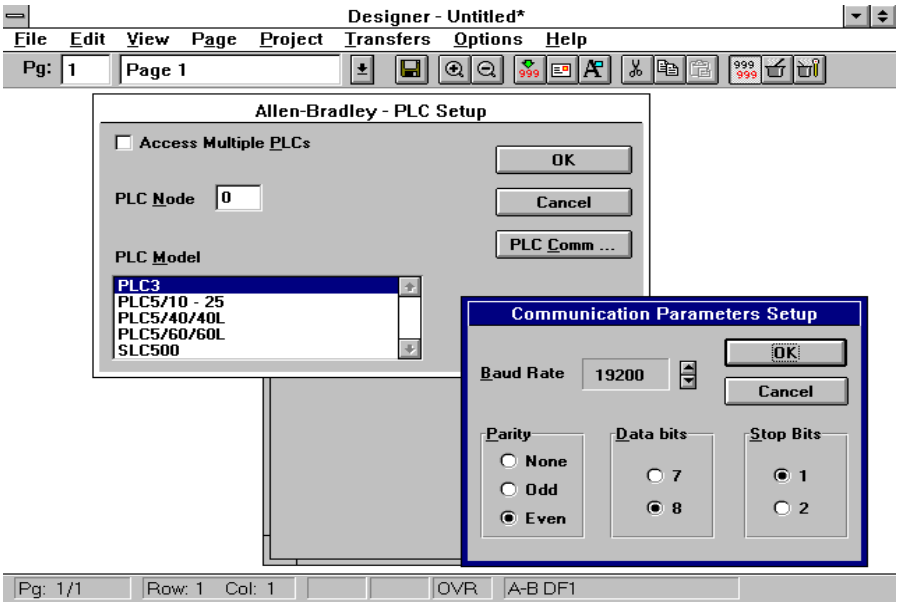
The first thing to do when showing the product is get a feel for the application. The display size, PLC type and model all contribute to the actual presentation. It is advisable to have all the cables needed for the particular PLC and communication type you are using, ready or on hand for the demo. It is also good to have a PC color monitor with you or on hand to show the software to customers, as it provides for an overall better presentation.

Getting Started

1. Start the Designer for Windows.
2. The UniOP panel should be connected to the PC with a CA1 or CA2 cable.
3. Make sure the cable is connected to the correct available PC port, so you can download a project to the panel or get panel resources.
4. Make sure the panel is in Configuration mode.
5. Select Get Panel Resources from the Transfers pull down menu.
6. Say Yes, to copy panel resources. This transfers the panel size automatically from the panel's serial EPROM, and updates the Designer display and PLC driver information.
7. Now you are ready to start developing and demonstrating the UniOP Designer functions.

Creating a Project

1. The first thing to do is to select Change PLC Driver from the Project menu. Choose the correct driver for the PLC that you are using and then choose OK.
2. Select Panel Setup from the Project menu and choose the correct panel type and settings.
3. Select PLC Setup from the Project menu and choose the proper PLC model. Set baud rate for PLC communication by selecting PLC COMM. The baud rate, parity, and stop bits should be set to the same as what the PLC communication port is set at in the PLC software or switches if applicable. Exit the panel setup by selecting OK, after all parameters are set up correctly.

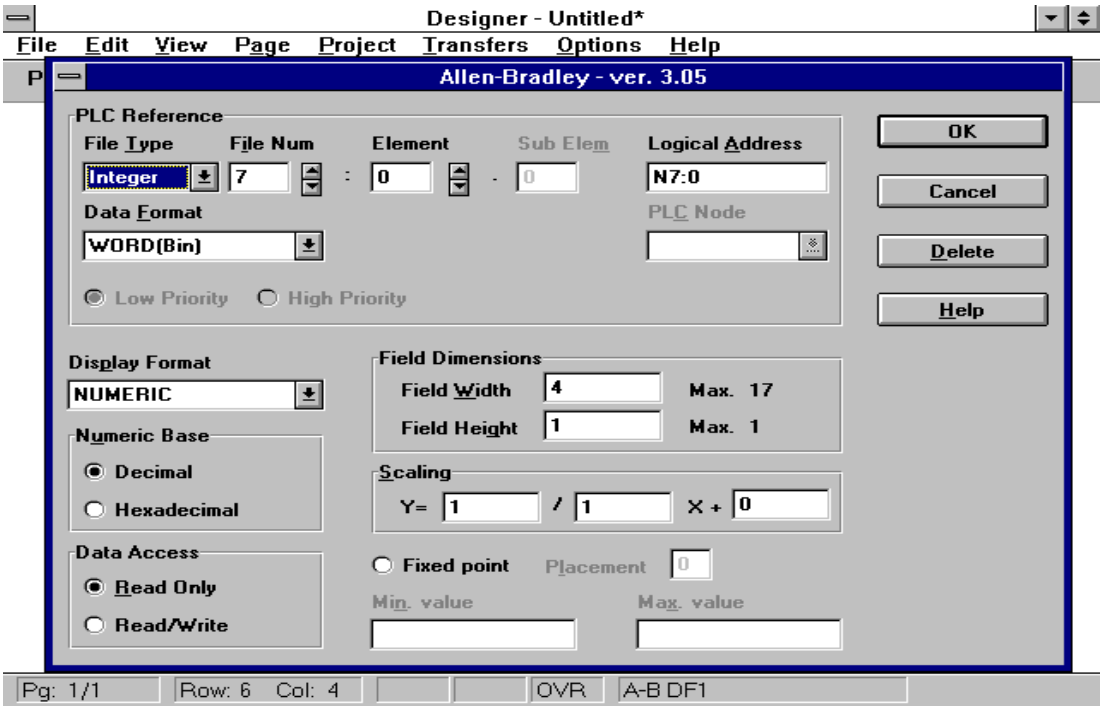


4. Select RDA Setup from the Project menu. This dialog box is used to change the default addresses of the RDA or Reserve Data Area. The RDA is a block of memory that the panel reserves for communication and data handling between the PLC and the panel.

Demonstrating the Functions of the Designer

Numeric Fields

1. One of the first things to demonstrate is the define field for a PLC variable. This dialog box can pop up by default just by double clicking the left mouse button or single clicking the right mouse button on the page where the field will begin, or by clicking and dragging the mouse to achieve the proper field dimensions and then select the numeric PLC field icon on the top of the Designer menu. The latter method will automatically set the field dimensions.



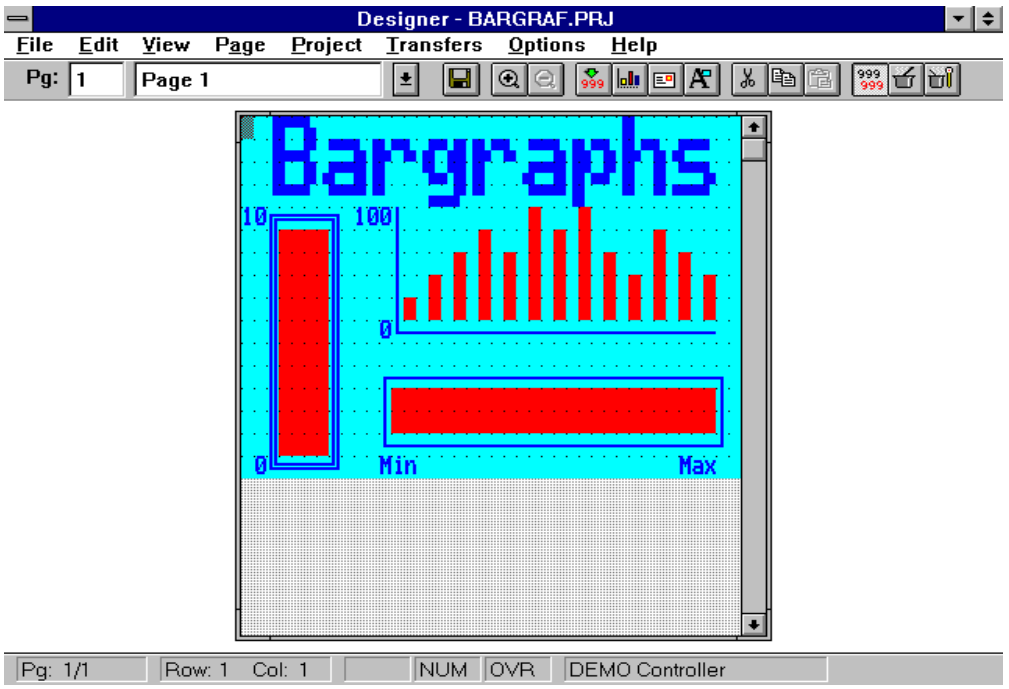
2. The PLC Reference section, in the upper portion of the screen, is dependent on the type of PLC selected. The fields in this section refer to a specific PLC type. They control the type, format, and address of the data.

3. The lower portion of the Define Field screen is not PLC specific. The fields in this area are used to inform the display how to handle the data. You can define the following:

- ? What form the data will be displayed in.
- ? Whether to use decimal or hex.
- ? Whether the data is read only or read/write.
- ? The size of the data field.
- ? Whether the data will be scaled and if so, to what extent. See Tech Note # 18 for more detail on scaling.
- ? Minimum and maximum values if the data is read/write.

Bargraphs

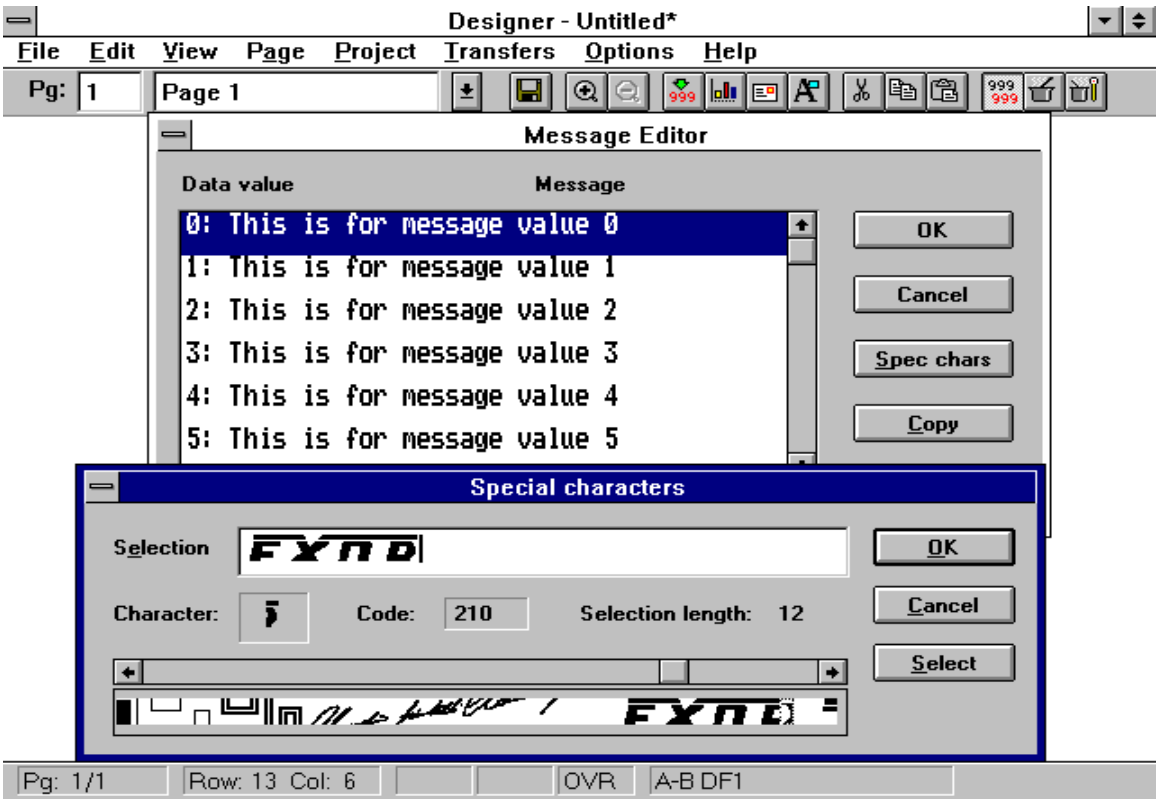
1. The first thing to do is click and drag the mouse on the display representation to select the size and location of the bargraph. Then click the bargraph icon at the top of the page in the Designer menu. The Bargraph define field will automatically appear and will show a default address to dynamically fix the bargraph to. Change the default address to an address you would like the bargraph to be dynamically referenced to.
2. This is the same type of Define Field screen that appeared for the numeric field. The PLC Reference section is used as before.
3. The Display Format field will show vertical or horizontal, depending on the appearance of the rectangle you created. The appearance can be changed by selecting Horizontal or Vertical and then entering specific height and width in the Field Dimensions.
4. The max. value for this field is the max. range for the bargraph. For example, if 300 is the max. value, when the PLC word value reaches 300 the bargraph will be full.



NOTE: You can put a box around anything by clicking and dragging the mouse and highlighting an area. Then select the menu at the top of the page, Edit/ Rectangles & Symbols. Then select the box style. It will appear surrounding the area you just highlighted.

Message Fields

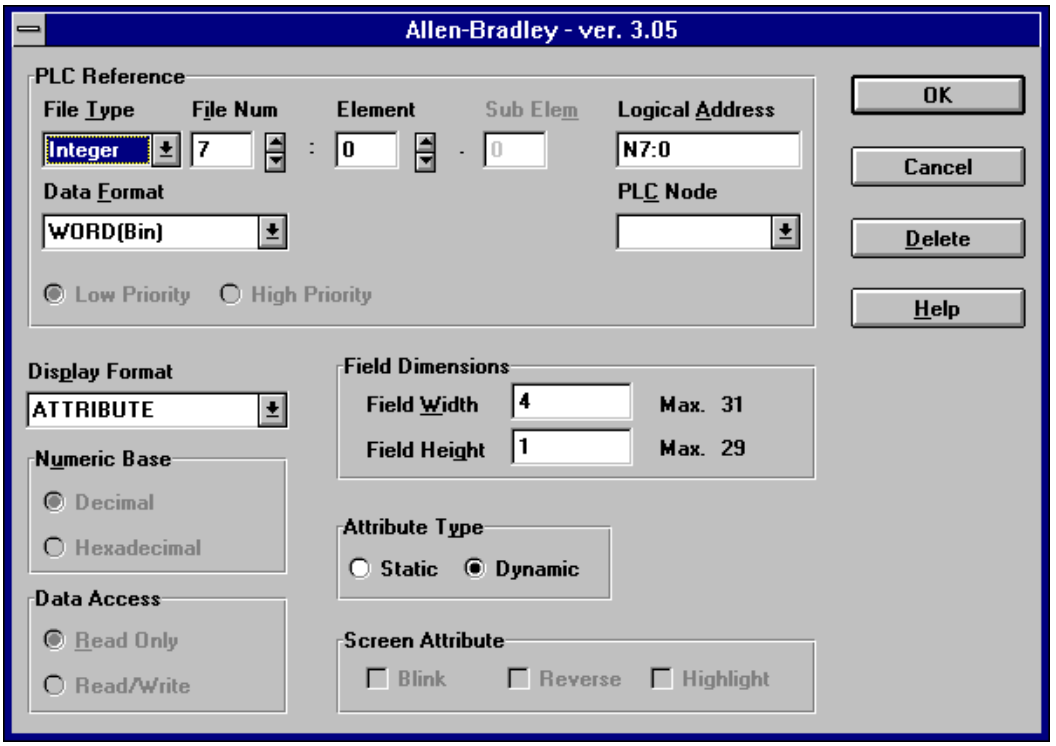
1. To create a message field you should click and drag the mouse pointer as before, the Designer will automatically limit your selected height to one line. Drag the mouse to create the width of the field area on your display. This width is equivalent to the number of maximum characters the message field can contain. Then click on the message icon at the top of the Designer screen. The message define field will appear.
2. Enter the parameters you prefer for this message field. For example if you dynamically fix the message to a bit, the field will have only 2 messages, one for the value of 0 and the other for the value of 1. If you select a word the field will have a maximum of 256 messages, one message for each value of the word from 0 to 255. The min. and max. values set the number of possible messages.



3. You then click the edit message button to enter your message for the different data values.
4. Select which message to edit by clicking the left mouse button on the correct number and then type the desired message.
5. It is also possible to add special characters to your message from your font. Just click on the special characters button in the edit message field and either select the highlighted character or double click on the character to select it. Press OK and the characters will appear in the message data value position you were last in before entering special characters mode.

Attributes

1. To use the attribute function of the display, you must click and drag over the entire field that you wish to highlight, reverse, blink, or any combination.
2. Click on the Attribute icon and the attribute define field will appear.
3. You can select either dynamic or static field representation. If you select static, the field will allow you to setup the attribute by selecting one or all of the screen attributes.

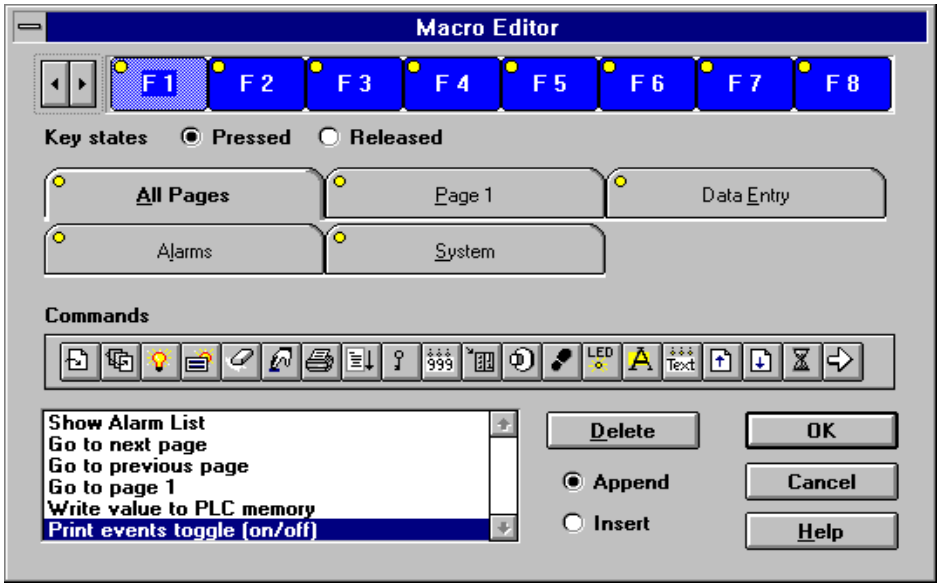


4. If you select dynamic, the screen attribute will be fixed to a value of a word or bit in the PLC. Enter the dynamic address in the same format as you had done previously for the other define fields.

NOTE: The attribute characteristic will depend on the value of the first 3 bits of the word you have it referenced to.

Keyboard Macro Editor

The Macro Editor has many possible functions. This powerful tool can enable the Designer to download Keyboard Macro functions to the UniOP as part of the project. This could also be considered local processing. Many routines that are written in ladder logic can be written using the Macro Editor. Not only does this save time in programming, but the response time of the routines will be much faster since the functions will be performed internally in the panel.

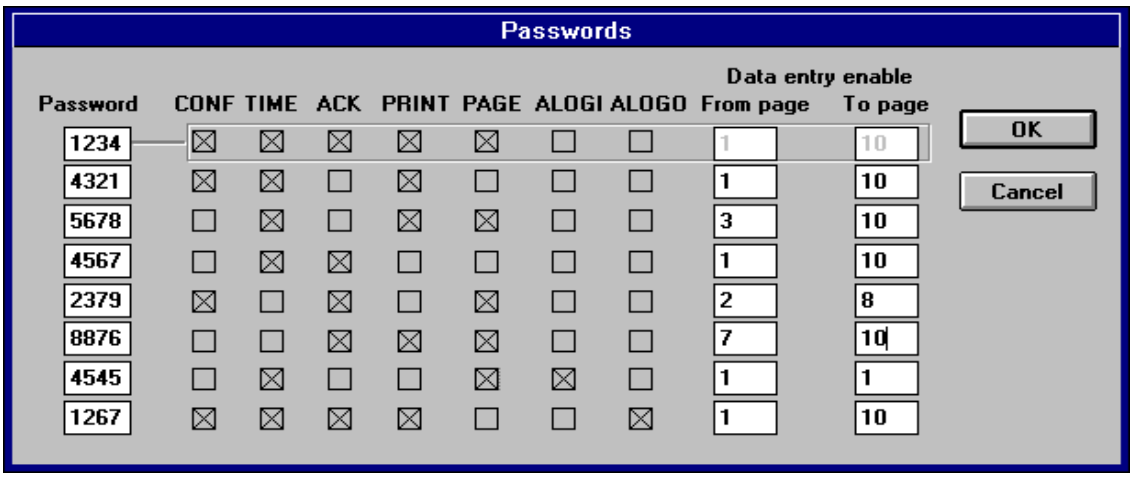


At the top of the Macro Editor dialog box is the list of the panel keys that are available for programming. You select the key by clicking the left mouse button over it. The selected key is displayed in the lighter shade of the color than the rest of the keys. There are more keys available for programming than could be displayed. The scroll button control, to the left of the keys, may be used to scroll through the list of keys. The list of tab controls shows available panel operating modes (System, All Pages, etc.). The selected operating mode is indicated by the tab displayed in the foreground with respect to the other tabs. The small circle at the top left side of each tab can be yellow or red, light and dark on monochrome monitors. Yellow indicates that no macro is defined for any key in the operating mode represented by the tab. Red indicates that at least one key is programmed. Below the list of tabs is the toolbar with the buttons representing elementary macros. The list box at the bottom left side of the dialog box displays all the elementary macros that make up the complex macro under construction. This list box is also used to preview the content of the macros that are already defined. You can insert, append and delete the elementary macros in the list box by clicking the buttons on the right side of the list. Since this is an elaborate capability of the unit, Tech Note #28 was written to describe the Macros in greater detail. The Macro Editor Help file can also be selected from the Macro Editor window for on-line help.

Note: The Macro Editor can only be selected from software versions 3.05 or greater. Also the Macros can only be downloaded to a panel with firmware version 3.12 or greater.

Passwords

1. The UniOP has 8 levels of passwords so that different operators and supervisors can be enabled to do different things within the project of the UniOP.



Passwords

Password	CONF	TIME	ACK	PRINT	PAGE	ALOGI	ALOGO	Data entry enable From page	Data entry enable To page
1234	☒	☒	☒	☒	☒	☐	☐	1	10
4321	☒	☒	☐	☒	☐	☐	☐	1	10
5678	☐	☒	☐	☒	☒	☐	☐	3	10
4567	☐	☒	☒	☐	☐	☐	☐	1	10
2379	☒	☐	☒	☐	☒	☐	☐	2	8
8876	☐	☐	☒	☒	☒	☐	☐	7	10
4545	☐	☒	☐	☐	☒	☒	☐	1	1
1267	☒	☒	☒	☒	☐	☐	☒	1	10

OK
Cancel

2. The highest level can always do all things so as not to lock this person out of Configuration Mode. This is in case the highest level person would like to update the project or change the project of the UniOP.
3. All UniOp panels provide password protection for the following:
   - CONF - Access to Configuration Mode.
   - TIME - Access to the Time and Date mode.
   - PAGE - Access to Direct Page Selection mode.
   - ACK - The right to acknowledge alarms.
   - PRINT - The right to request printouts.
   - ALOGI - Automatic Login
   - ALOGO - Automatic Logoff
   - Data entry enable - Access to Data Entry mode for specific pages.

Alarms

Compatibility Mode

The UniOP offers the storage and automatic display of up to 256 alarm messages. Priority levels (0 - 255) can be assigned to handle simultaneous alarms. Alarms are each assigned an individual bit in the Alarm Update Area of the RDA. Alarms are triggered by a high bit from the PLC.

1. Select Project / Alarms from the top of the Designer pull down menus.
2. Click on Compatibility Mode and then on OK.
3. The Compatibility Alarm define field will appear.

4. Type in your alarm message for the respective alarm bit which is mapped in the Reserved Data Area for communication with the PLC.

ALARM UPDATE AREA	bit 15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	bit 0
21	A16	A15	A14	A13	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1
22	A32	A31	A30	A29	A28	A27	A26	A25	A24	A23	A22	A21	A20	A19	A18	A17
---------- (break) ---------																
35	A240	A239	A238	A237	A236	A235	A234	A233	A232	A231	A230	A229	A228	A227	A226	A225
36	A256	A255	A254	A253	A252	A251	A250	A249	A248	A247	A246	A245	A244	A243	A242	A241

5. You can then select which alarm data you want to go to the circular buffer Event List in the UniOP, or be printed from the UniOP automatically if a printer is attached to the unit while on-line and the alarm occurs. These choices are selected as *Time of ACK, Time of Alarm (ON), or Time of reset (OFF)*. The buffer holds 256 different events at one time the newest knocks out the oldest, which is why it is called circular.

6. You can also select if you want the alarm to have to be acknowledged by the Operator. This is selected by clicking the *Operator ACK required* button and putting an X in this box.
7. When this is selected and an alarm occurs the alarm page appears on the display and the ACK letters will be flashing and the alarm light on the UniOP will also be flashing. To acknowledge the alarm, you must press enter for a few seconds until the ACK letters disappear from the display.
8. Then press clear and the display will return to page mode of your project.
9. If the alarm bit is not reset the alarm page will keep reappearing until the alarm bit is reset, and the alarm light on the front panel of the UniOP will be on but not flashing unless there is several alarms and at least one needs acknowledgment.
10. The time and date of the alarm will be automatically displayed on the screen along with the alarm message.

Alarm Options

1. The alarm page's appearance can be prevented, by setting the RDA control bit C2. This bit prevents the alarm page from appearing on the display. So if that particular Alarm has **Operator Acknowledgment Required** X'd, the operator would have to go into the main menu to ACK the alarm by pressing the ENTER key for about 2 seconds and selecting alarms. Then press enter to ACK the alarm. The ACK letters will disappear and the alarm light will stop flashing but will still be on if the alarm bit is still set.

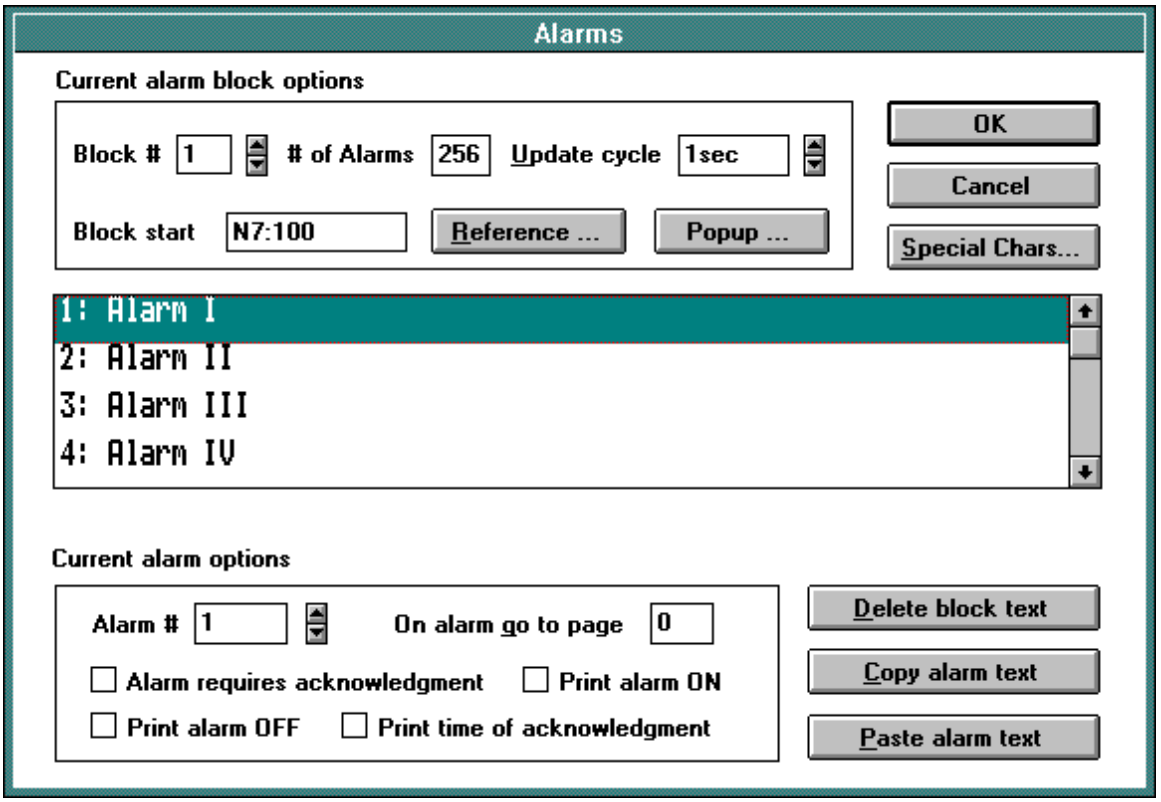
Enhanced Mode

The enhanced mode offers more flexibility and a greater number of alarms. This mode offers up to 1024 alarms which are broken into 4 blocks of 256. Each block can be addressed to any register and is not restricted to a pre-defined register as with the Compatibility Mode alarms.

1. Select Projects / Alarms from the top of the pull down menus.
2. Click on Enhanced Mode and then on OK.
3. The Enhanced Alarms define field will appear.
4. The *Block #* field allows you to select between the four alarm blocks.
5. The *# of Alarms* field is used to specify how many alarms will be used in that block. The Designer will automatically round off the specified number to a multiple of 16 since the alarms are word addressed.
6. The *Update cycle* field is used to change how often the alarms are updated. The *Popup* button allows the user to specify when, or if, the default alarm screen appears when an alarm occurs.
7. The *Block start address* field is used to specify the starting address of the current block.
8. If you are unsure how to address the alarm block, click on *Address Reference*. This will give a detailed dialog box for addressing. If this panel is used in a network, you will have to use this *Address Reference* to specify node numbers.
9. You can scroll through the alarm messages by using the scroll arrows to the right. To create or edit a message, simply highlight the desired message and type your text.
10. If you do not type a text message into each of the specified alarms within a block, then the Designer will automatically delete any unused alarms above the last alarm with text entered. That is to say that if you specified there were to be 20 alarms within a block and you entered text

messages for the first 14 alarms, then the Designer would automatically reduce the number of alarms in that block down to 16. This would be 16 instead of 14 because the alarms are addressed as individual bits within 16-bit words.

11. The *Alarm #* field can also be used to select a specific alarm.
12. The *On alarm go to page* field can be used to have the program jump to a specified page when that alarm is activated. This also requires that you set up a keyboard macro so that if multiple alarms occur at once, the program is not jumping from page to page. The keyboard macro should be set up so that the program will go to a specified page only when a specific key is depressed. The default setting for this field is 0. When this field is 0, the program cannot jump to any page because there is no page 0.

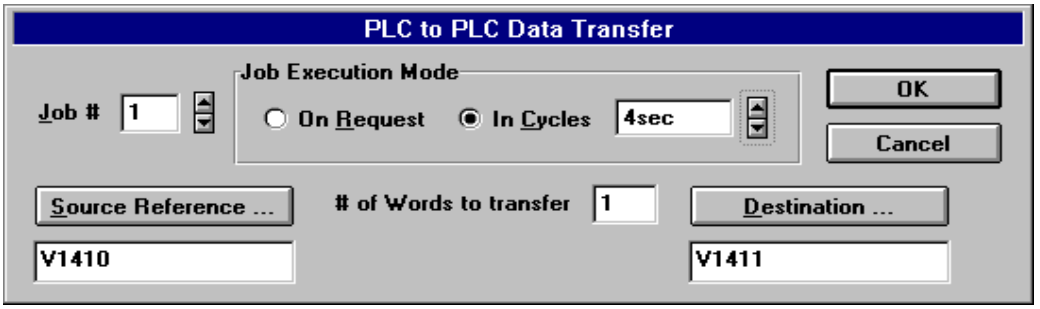


13. You can select whether the alarm requires acknowledgment.
14. You can select which alarm data you want to go to the Event list or to be printed by placing X's in the appropriate boxes. You can select between *Print alarm ON*, *Print alarm OFF*, and *Print time of acknowledgment.*
15. The Enhanced Alarm mode also adds the Delete, Copy, and Paste features for use in editing the alarm messages. This makes editing the text easier if you have many messages which are similar. It also allows you to create alarm messages in a text editor such as Windows' Notepad. You can then copy the messages into the clipboard and then paste them into the alarm message dialog box.
16. Please refer to Tech Note # 38 for more detail on Enhanced Alarms.

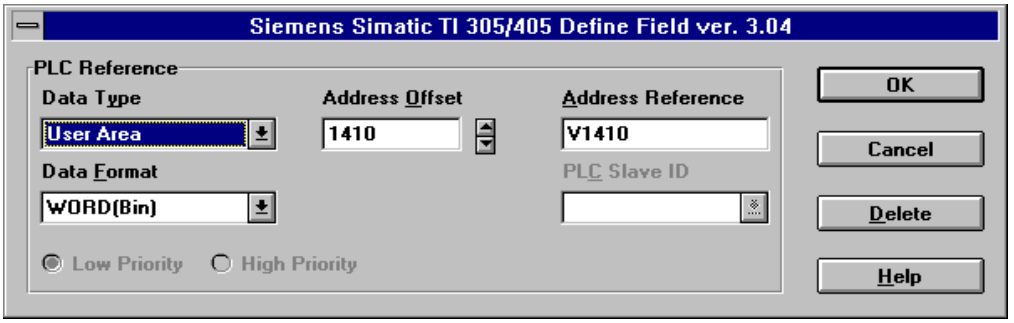
PLC to PLC Data Transfer

This is a technique of exchanging data between two or more PLC's or between registers within a single PLC. The PLC's can be connected either locally over multi-drop network to a single UniOP in non-networked project or both locally and/or remotely to different UniOP nodes in a networked project. That is to say that the PLC's can be connected by their own network or the PLC's can be networked by using the UniNet Network.

We'll call one complete PLC to PLC data transfer a "Job". To set up a transfer, select PLC to PLC Data Transfer item from the Project menu. The dialog box shown below will be displayed.



The first field is used to select between the different jobs. Click on the Source Reference button to specify the register to be read. The dialog box shown below will then be displayed.



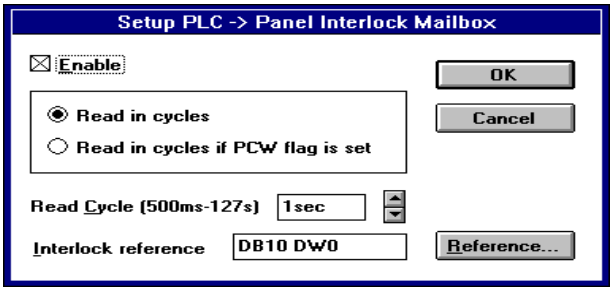
These fields will be slightly different depending on the PLC that you are using. Use these fields to specify the type of data, format, and address of the register that you wish to read. Enter the number of words to be transferred in the appropriate box. Click on the destination button, and you again see the dialog box as shown above in Figure 3. Enter the correct information for the register where you want the data written.

If the *Job Execution Mode* is set to *In Cycles*, the panel will automatically transfer the data on each cycle. The cycle period can be set from 10 ms to 127 sec. Remember the faster the cycles, the faster the panel will transfer data, but this will slow down the rest of the system. If the *Job Execution Mode* is set to *On request*, the PLC must send a request to the Interlock Mailbox before the data will be transferred. Then next section will describe the PLC Interlock Mailbox.

PLC Interlock Mailbox

The UniOP Interlock Mailbox is a new facility designed to make it easier for the operator panel to interact with the PLC ladder program. The Mailbox is simply a group of registers in the PLC memory (from a minimum of 2 registers to a maximum of 20). The Mailbox can be freely placed in the PLC memory at an address selected by the user. When the Mailbox is enabled, the operator panel cyclically reads the contents of the Mailbox from the PLC. The PLC can command the operator panel to perform certain tasks by placing data in the memory area used by the Mailbox. When the panel detects that the PLC has written data in the Mailbox, it interprets the data as a numeric code for a required command. If the panel recognizes the command it immediately executes it. If the command requires some response from the panel then the panel places the response back in the Mailbox itself.

To enable the Mailbox, choose the PLC Interlock Mailbox item from the Project Menu. The dialog box shown below will then be displayed.



By default the Mailbox is disabled, simply click on the first box to enable it. The two radio buttons allow you to enable the Mailbox in either of the two different modes:

- Cyclical read
- Cyclical read enabled by a bit in the PLC Control Word (PCW)

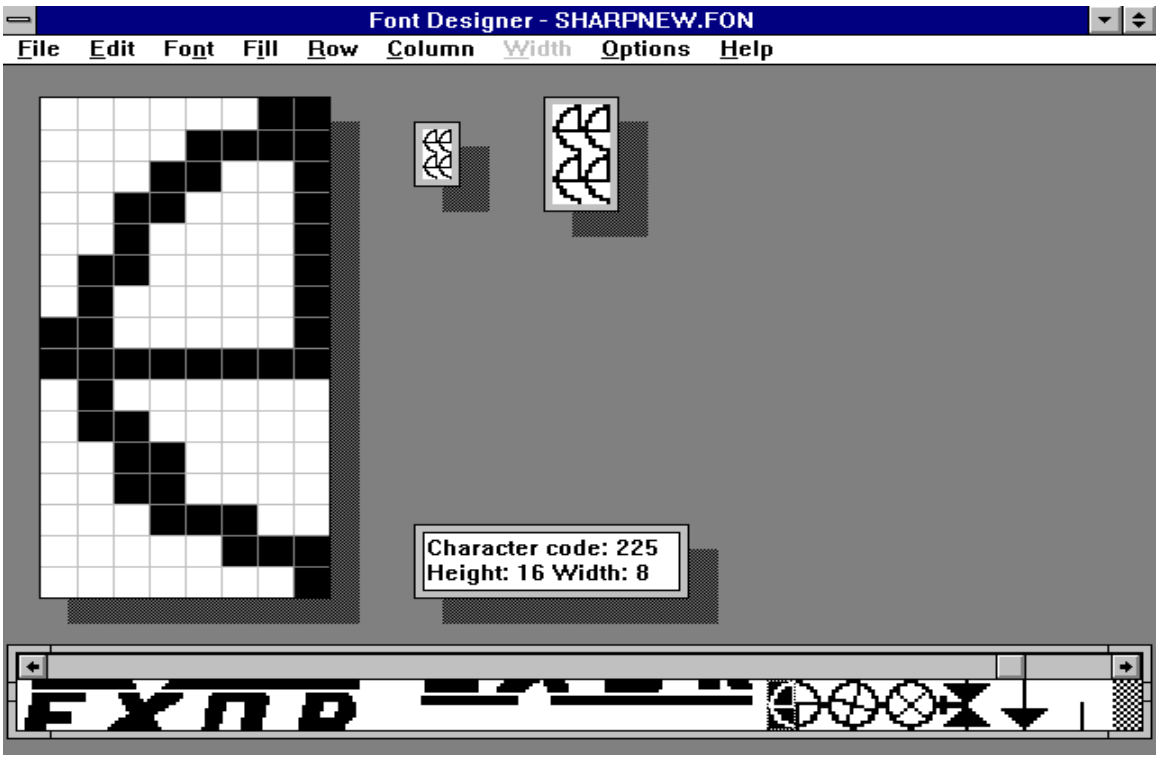
In the latter case, the panel will cyclically read the data in the Mailbox only when bit C7 in the PLC Control Word of the Reserved Data Area is set. The purpose of this mode is to reduce the communication time when there is no need for the PLC to send commands to the panel.

The *Read Cycle* time specifies how frequently the operator panel will read the data in the Mailbox to check if it contains a new command. The faster the Mailbox *Read cycle*, the faster the panel will respond to commands from the PLC, but of course, the update of the variables shown on the display will be slower.

The *Interlock reference* is the address of the first Mailbox register in the PLC memory. The address can be entered directly as a string or with a fill-in-the-blank dialog box displayed by clicking on the *Reference* button. When entering the PLC address, care must be taken to ensure that the PLC memory used by the Mailbox does not overlap with the memory areas reserved for other panel functions such as panel status, alarms, I/O update, keyboard update, etc.

Font Editor

1. The Font Editor allows you to modify the down-loadable font of semi-graphical displays.
2. Select Font Editor from the Options pull down menu.
3. Your font will appear on the display in the font editor.



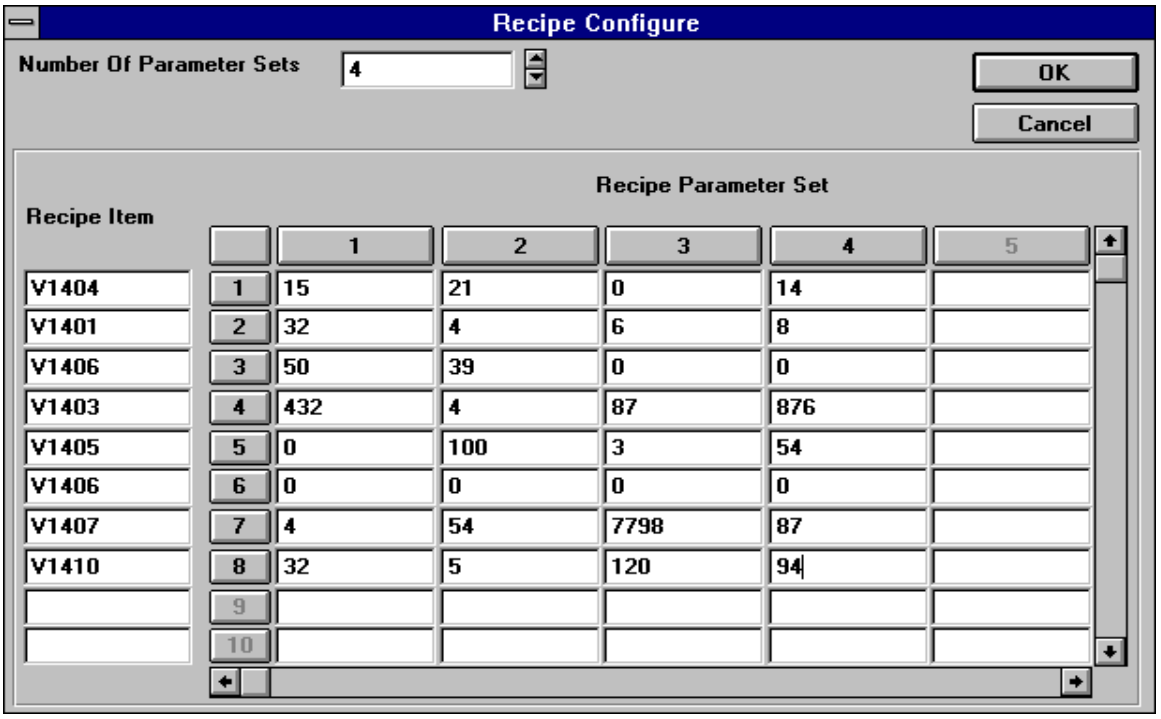
4. You can select one character to change or you can select several characters as a symbol.
5. To select symbol mode, you select Options / Define Symbol from the pull down menu.
6. Select Symbol Dimensions and enter the height and width of the symbol you would like to define. Select OK.
7. Select Options / Define Symbol again and then select Draw New Symbol.
8. The display will change to the Symbol dimensions you selected. It will put all the symbols from the font, where the cursor is at, in this symbol edit box.
9. You can now edit this symbol and even give it a name for later use from the Edit / Draw Object selection in the Designer.
10. To give it a name you must select Options / Define Symbol / Symbol Name from the Font Editor menus. Then just give this symbol or group of selected characters any name.
11. When finished modifying the font, you must save the font by selecting Save or Save As under the File menu.
12. The font must then be installed by selecting Install/View installed Fonts under the File menu. Select which display panels you want to use this font with and click on Install Font.
13. The Font Editor has an extensive help file to aid you in the event you have more questions.

Recipes

All versions of the UniOP panels with firmware 4.00 or greater, offer the use of recipes. Recipes provide a powerful way to extend the capabilities of a PLC. A recipe allows data to be stored for use by an attached PLC. The data can be written to the PLC, when required, or can be read from the PLC and then placed into the recipe memory.

A Recipe is associated with a particular page and is composed of all the Recipe data items on that page. However, there can be many different parameter sets. This allows the programmer to enter many different sets of parameters for the PLC. For example, one set may be used to configure the PLC to control the production of 2mm screws and another set for 5mm screws. Several more parameter sets could be added to control production of other sizes. This allows the operator to easily change what size screw a machine will produce by simply selecting a different parameter set.

Recipes are created by clicking on the Recipe icon. Then the data fields are create on the screen the same as for normal PLC data, except that the screen will be titled Define Field - Recipe Item. After all the Recipe items are defined, you can go to the Configure Recipe screen under the Page menu to enter the values for the different parameter sets. When you finish creating a recipe, the Data Field Source will stay in the PLC Recipe Data mode until it is changed. This means that if you want to enter regular PLC Data that you must click on the PLC Data icon before creating the new field.



For a more detailed description of recipes, please refer to Tech Note #32.

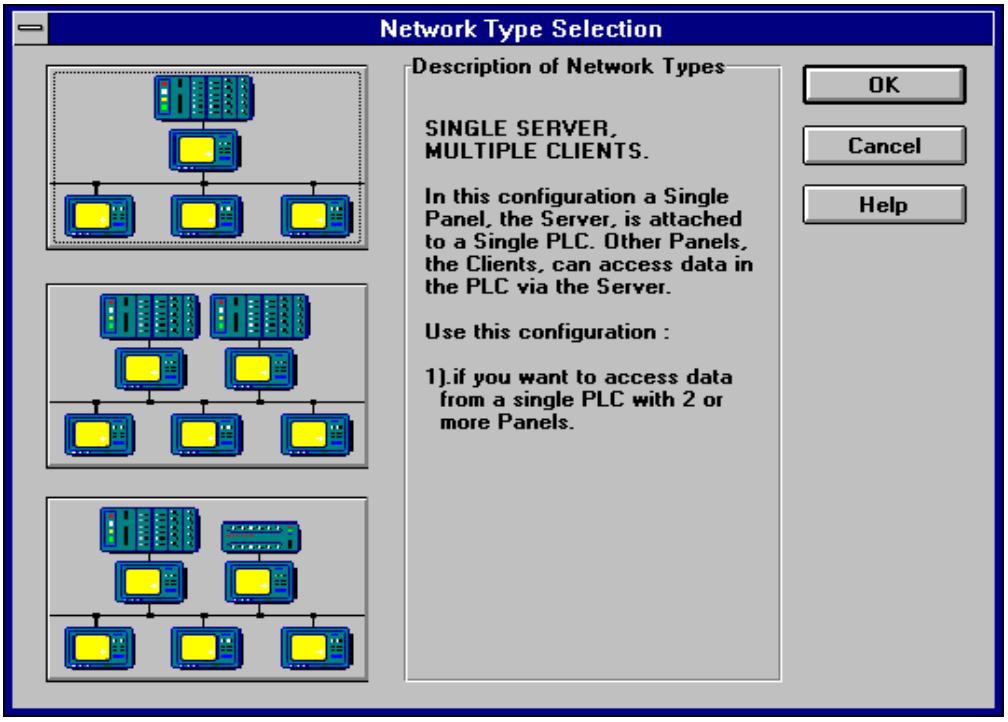
UniNET Network

The UniNET Network makes it possible to connect 2 or more panels (maximum 32) with a RS-485 connection. This makes it possible for one panel to display either data from the PLC attached directly to it, or from PLC's attached to other panels on the network.

The operator panels attached to the UniNET Network can be classified in two categories depending on the type of communication that they can support once they are placed in the network. A panel is considered a Server when it is connected directly to a PLC. A Server makes data in its PLC available to other panels. A panel is considered a Client when it request data from a PLC attached to a Server on the network. This means that in certain cases, a panel can be both a Server and a Client. This means that there are three types of networks.

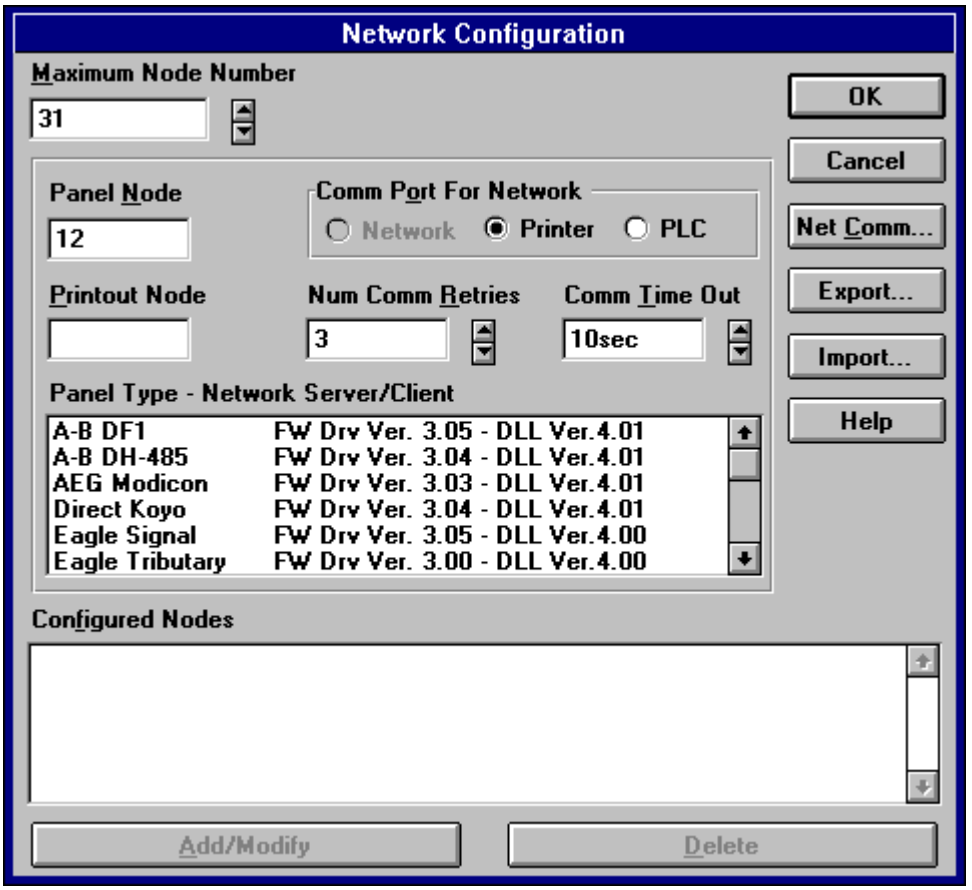
? Single server, multiple clients
? Multiple servers, multiple clients, same PLC types
? Multiple servers, multiple clients, different PLC types

You must first configure the panels for a network. This is done by selecting Options / Configure Network. You can select between the three basic types of networks shown below.



In the first two cases the Designer program will ask you to enter the number of Clients and Servers and then automatically configure the network to default values. If you wish to make changes to the default settings of the network, select Options / Configure Network again and a different screen

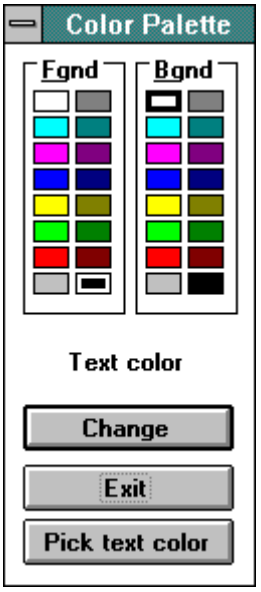
(shown below) will appear this time that will allow you to make changes. The third case is the most advance option and gives the user complete control over the network. This allows the user to make full use of the capabilities of the UniNET network, but this is at the expense of having to explicitly specify all configuration parameters for the network. When the third option is selected, the screen that allows changes to be made to the network will appear immediately as shown below.



For a more detailed description of the UniNET Network, please refer to Tech Note #36.

Color UniOP Panels

It is now possible to display any combination of up to 16 different colors on certain models of UniOP panels. To access the color option within the software, the user can select *Color palette* from the *Edit* menu, or click on the appropriate icon in the *Extra ToolBelt*. Doing so will bring up the dialog box that is shown below.



This dialog box allows the user to change the background color and the foreground color (either static text or data fields). The user can select whether to change these colors on a global level or on a current selection. If the user wishes to make the colors the default setting for all subsequently created pages, selecting the colors and clicking on the *Pick text color* button will accomplish this. Likewise, if the user wishes to change the colors only for the currently selected area, this can be accomplished by selecting the colors and clicking on the *Change* button.

The area below the palette bars and above the buttons will indicate the global setting for the project file. For example, in the dialog box shown above, the colors are set for a white background and a black foreground. Every page that is created will have these colors as a default setting unless the user specifies otherwise by selecting different colors and clicking on the *Pick text color* button.

NOTE: The button entitled *Pick text color* will change to *Pick field color* whenever a data field is selected. Likewise, the area below the palette bars that shows the global setting will also change from *Text color* to *Field color* whenever a data field is selected.

Changing the Background / Foreground Color Globally

1. Either select *Color palette* from the *Edit* menu or click on the appropriate icon in the *Extra ToolBelt*.

2. Select the color(s) to be used and click on the *Pick text color* button.

Changing the Background / Foreground Color for a Highlighted Area

1. Highlight the area that is to be affected.
2. Either select *Color palette* from the *Edit* menu or click on the appropriate icon in the *Extra ToolBelt*.
3. Select the color(s) to be used and click on the *Change* button.

Making the Colors of a Data Field or Static Text the Global Default Colors

1. Position the cursor somewhere on the data field or on the static text.
2. Either select *Color palette* from the *Edit* menu or click on the appropriate icon in the *Extra ToolBelt*.
3. Click on the *Pick text color* button.

Finding Out the Colors of a Particular Area or Field

1. Either select *Color palette* from the *Edit* menu or click on the appropriate icon in the *Extra ToolBelt*.
2. Position the cursor on the desired location by single clicking the left mouse button.
3. Click on the title of the dialog box. The currently selected colors for the area will be reflected in the color palette bars.

Application Notes

1. Each field can be in only one color. For example, assume the user has a field that displays a two digit number. If the first digit is blue, the second digit can not be displayed in any other color but blue.

2. If the user tries to make the background color and the foreground color the same, the software will display a text message asking the user if this is what they wish to do. If the background color and the foreground color are the same, everything will appear transparent and no data fields or static text will be visible.

Closing Remarks

The Designer for Windows is capable of doing all the MS Windows features, for example cutting and pasting on the display and copying pages or parts of pages to other pages, copying to the Clipboard, or even working on more than one Windows based programs at a time. The possibilities are amazing. We are always adding new drivers for the developing market. We well continue to develop new features to the Designer and the UniOP to aid you in filling that specific application for a Man Machine Interface.