

Project Tutorial

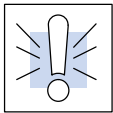
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Tutorial Overview

You probably want to get your new **DirectTouch** panel out of the box and start creating screens as quickly as possible to get an idea of what's involved and to make sure it will *talk* to your PLC. This brief Project Tutorial is designed to do just that. It will guide you through a small project from start to finish, so you'll be able to get going quickly on your own application. This tutorial will incorporate a few of the basic features used in a typical project. You've installed ScreenCreator (in Chapter 1) and are now ready to setup the **DirectTouch** panel to communicate with your PC.

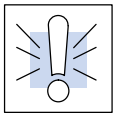
Starting on the next page you will be guided through the process of creating a small project for a pulp mill.



Warning: Be aware that the **DirectTouch** panel, as with any external device, can write to PLC registers and bits. You must be careful in using the panel to write to any PLC address. **It is a good idea to use PLC ladder logic to call screens and to write to PLC outputs based on prescribed conditions.**

Set up the Panel

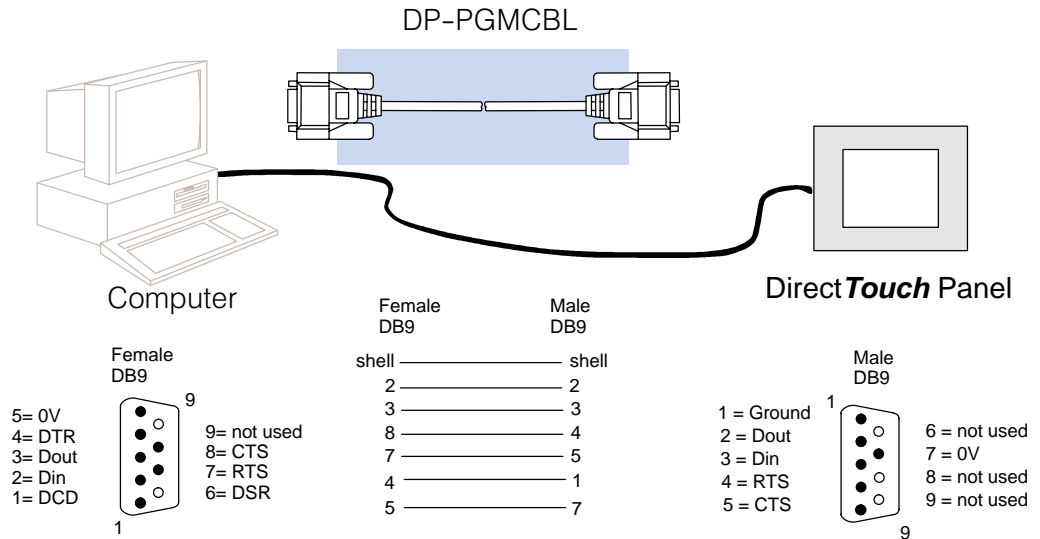
Refer to the **DirectTouch** User Manual in order to properly set up the panel and connect it to your PC using the programming cable (DP-PGMCBL). There is no need to mount the **DirectTouch** panel in an enclosure for this tutorial! Instead, we recommend that you set it up on your desk or somewhere near your computer.

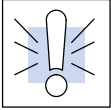


Warning: *Do not change the DIP switch settings on the back of the DirectTouch panel. The DIP switches are only used by the manufacturer.*

Programming Cable (DP-PGMCBL)

Connect the programming cable (DP-PGMCBL) between the serial port (CH1) of the **DirectTouch** panel and the serial port of the personal computer. The figure below shows programming cable connectors and wiring specifications. *Wiring diagrams refer to the communication ports.*





Warning: Do not use the PLC's 24 VDC power supply to power the DirectTouch panel. We offer a 24 VDC power supply, the FA-24PS, which works well with either color or monochrome panels.

Start ScreenCreator

When you have set up your panel and have connected it to your PC, start ScreenCreator either from the Start menu (Start > Programs > ScreenCreator), or from the SC folder in Windows Explorer.

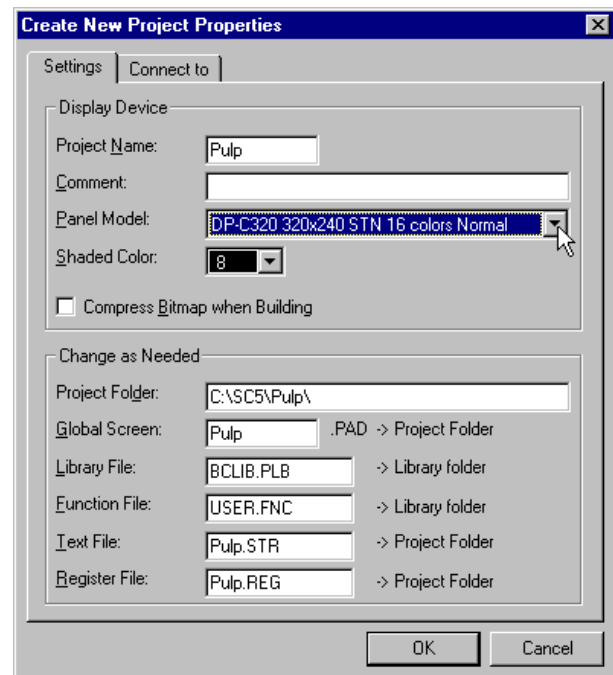
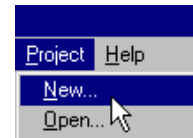
Create a New Project

Create a New Project

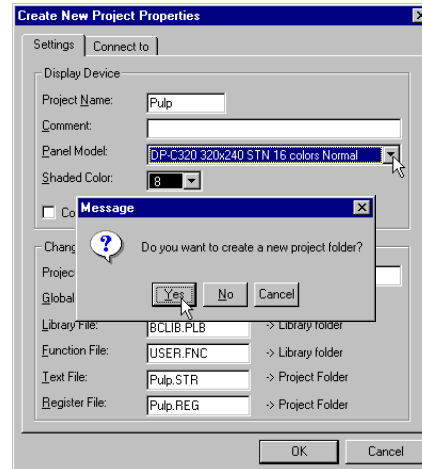
Once ScreenCreator is launched, create a new project by selecting New under the Project menu (**Project > New...**). In the New Project dialog box, enter "Pulp" as the name of your project, since it will be for a pulp mill. Next, click on the arrow down button at the right end of the Panel field. The panel model number list will drop down. Select DP-C320* 16 colors Normal if you have a color panel or select DP-M320** if you have a monochrome panel. By the way, *Normal* refers to horizontal mounting versus vertical mounting. If you were actually going to mount your panel vertically, of course, you would select *Vertical*.

*Also represents the DP-C321 panel.

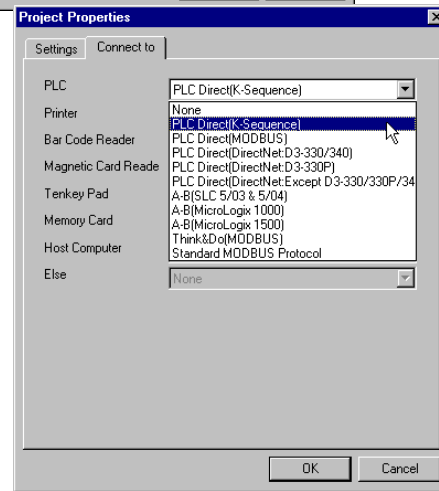
**Also represents the DP-M321 panel.



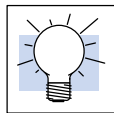
To choose the PLC which will connect to the panel, click on the 'Connect To' Tab. You will immediately be asked, "Do you want to create a new project folder?" Click Yes.



Now choose the PLC type/protocol from the list (we have chosen K-Sequence). Once you have picked your PLC protocol, click OK.



Note: ScreenCreator does not support Allen-Bradley SLC 5/01 or 5/02 PLCs, but does support the SLC 5/03 and 5/04 PLCs.



TIP: By the way, you never have to Save the current project. Only the screens in the project have to be saved.

Local Screens

When you click OK, an 'Untitled' local screen appears. Ignore this screen for now, although what follows could have been done on this local screen as well. Close 'Untitled' without saving by clicking the X in the upper right corner of the window.

Create a New Screen

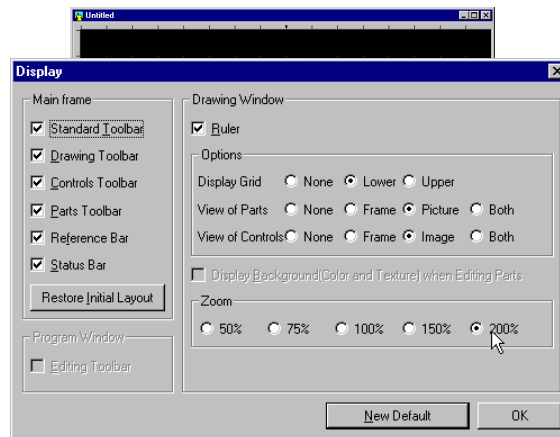


Click on the standard Windows "New" tool or select the **Screen > New...** menu to create a new screen. This new screen will also be a local screen and will be labeled 'Untitled'.

Zoom Screen



Now click on the display tool and select a Zoom size of 200% and click 'New Default'. This setting will be used throughout the manual unless otherwise noted.



Size Window to Screen



You may notice that after changing the Zoom size to 200%, the window is now smaller than the screen. Click on the *Size Window to Screen* tool, and the window now fits the screen size.



TIP: It is a good idea to get used to clicking the the various tools instead of selecting the function through the menu bar. You'll save a lot of time!

Add a New Part

A part is an object displayed on the Direct**Touch** panel which operates like the physical part it represents. Examples include pushbuttons, lights, meters, etc.

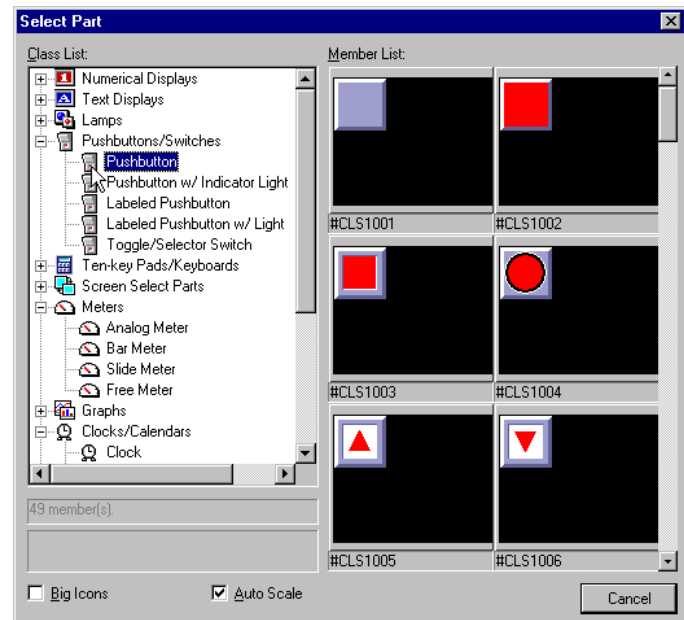
Select the Type of Part

To add a new part to the screen we select a part from the Part Toolbar. Click on the Pushbuttons/Switches tool on the Part Toolbar to open the Select Part window.



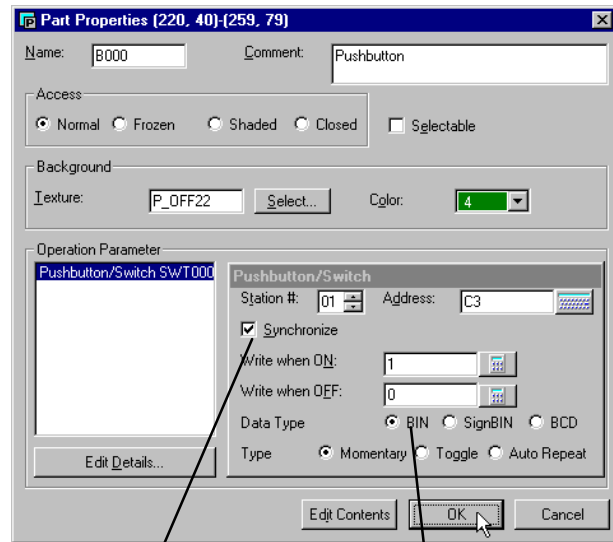
Select the Part

Initially the major heading "Pushbuttons/Switches" is highlighted and there are no members displayed. Click on the Pushbutton Icon in the Class List (the left column) to view all the members of that class (in the right column). Click the green pushbutton in the top right corner and the Part Properties window is opened.



Part Properties

Let the part have the default Name B000 for now. Click on the Address field and with the cursor blinking, enter 'C3' as the single bit PLC address for this Pushbutton. *Enter an appropriate address if you are using a different PLC model.* The default Type of pushbutton is Momentary, which means it only stays on while the pushbutton is pressed. Click the Toggle button to change to "maintained operation". This will turn the bit ON when the pushbutton is pressed and turn it OFF when it is pressed again. Also be sure to check Synchronize and BIN as shown.



Check
Synchronize

Check BIN

Explanation of Settings

The purpose of the Synchronize setting above is to confirm PLC to panel communication. Synchronize sets the pushbutton/switch to read from the PLC bit address and indicate the status of the bit by the ON or OFF color. If *Synchronize* is disabled, the control simply writes to the bit and indicates the ON or OFF color regardless of the actual state of the bit. (If, for some reason, the bit in the PLC was never changed, the part would not indicate this.) With *Synchronize* enabled, however, the control confirms panel and PLC communication.

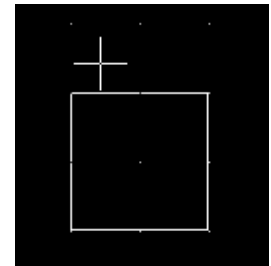
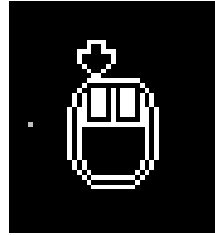
The purpose of selecting Binary (BIN) above is because this is the normal data type for bit level devices, such as pushbuttons or lights.

NOTE: If your PLC has a Run/Terminal switch (or Run/Remote for A-B), make sure that your PLC is switch set to Terminal (or Remote) mode at this point to allow the panel to WRITE to the PLC. This is important!

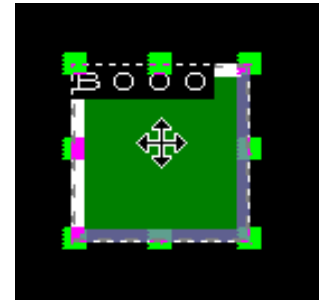


Place the Part on the Screen

Click on 'Arrangement', to place the pushbutton anywhere on the screen. Your pointer will become a mouse as shown to the right. Press your left mouse button and the pointer becomes a cross-hair with the outline of the pushbutton beneath it.



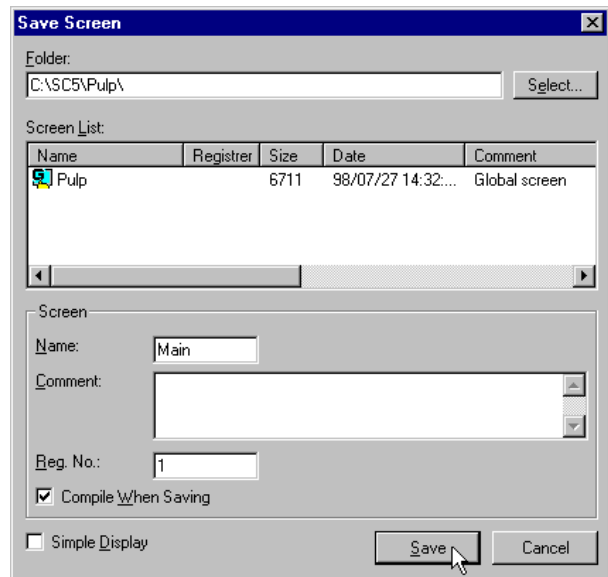
Move the cross-hair around on the screen and press the left mouse button again to place the Part on the screen as shown. Notice that the pushbutton is forced to the grid blocks (even if the Snap Grid were OFF). This is true for any part that is accessed by touch— to insure proper selection on the screen.



Save the New Screen



Click on the standard Windows 'Save' tool to save the newly created screen. Delete 'Untitled' and type 'Main' as the Screen Name. *Note: The name must begin with a letter and may be 8 alphanumeric total.* Enter 1 as the Reg. No. (Registration Number) for this screen. This will cause the screen *Main* to be the first screen displayed when the **DirectTouch** panel is powered ON. Now, click 'Save' to save the screen.



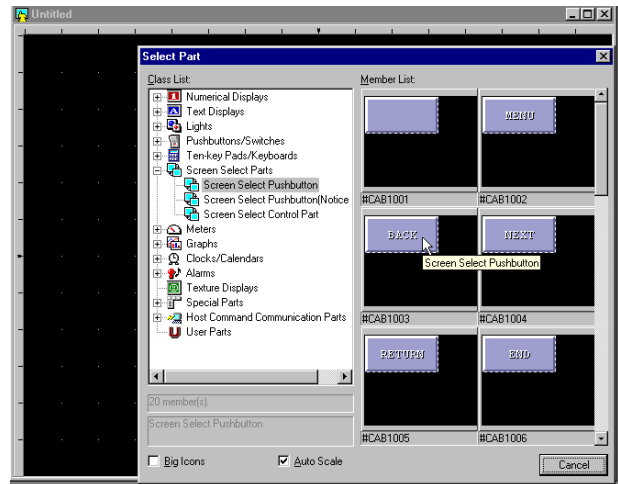
If a compilation error for Invalid Address occurs during the Save process, double-click the pushbutton, enter the correct PLC address and click 'Save' again.



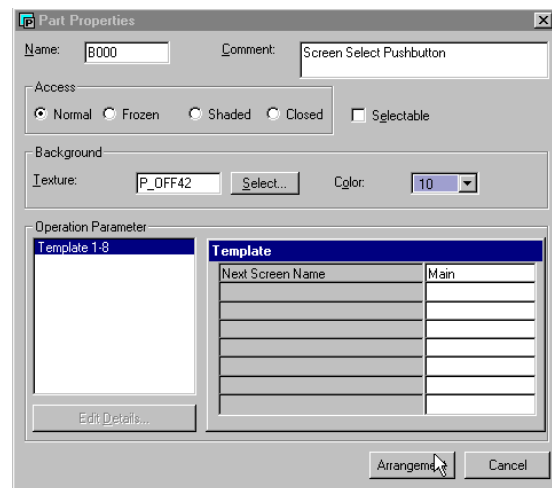
NOTE: Every project which is downloaded to a **DirectTouch** panel must have one local screen with a Registration Number = 1. This number designates the screen as the first screen displayed when the panel is powered ON.

Add a New Screen and Screen Select parts

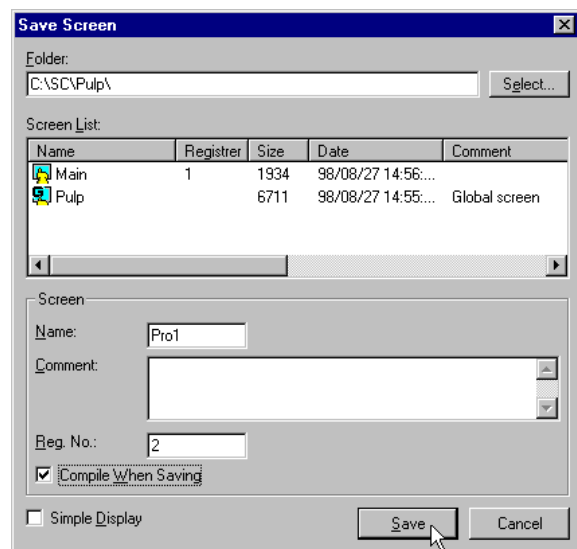
Now, we will create a new screen and add a Screen Select part to both the new screen and to *Main*. This will allow us to go back and forth between the two screens. Click on the New Screen tool (which creates another Untitled screen). Click the Screen Select tool and choose the *Back* button as shown.



Now enter *Main* as the Next Screen Name (to be called when this Screen Select part is pressed). This will send us back to the first screen, *Main*.



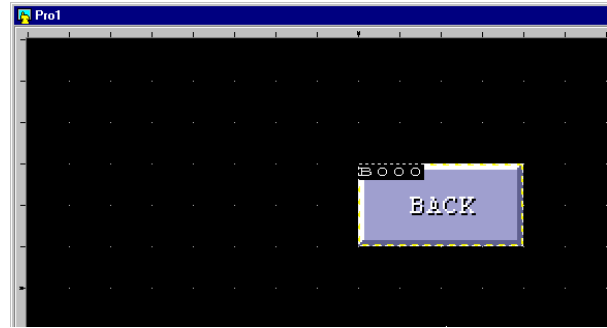
Click *Arrangement* and place the Screen Select part onto the new screen just like you did the first pushbutton.



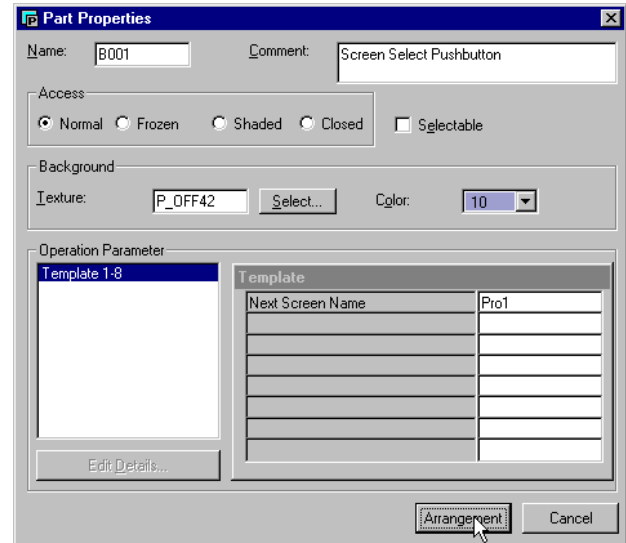
Save the screen as *Pro1*, for *Process1*, and give it a Registration Number of 2.

Add a New Screen and Screen Select parts (Continued)

Screen *Pro1* with the Screen Select button which returns to screen *Main*.



Repeat the above steps on the *Main* screen and use the Screen Select button labeled *Next*, with *Pro1* entered as the Next Screen Name. Click the Save tool to save the change to *Main*. Now we have two screens and a way to go back and forth between them.

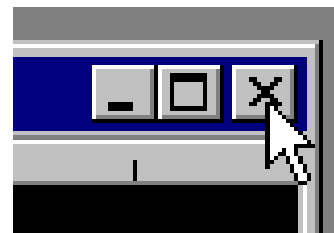


Screen *Main* with the Screen Select button which calls screen *Pro1*.



Close both Screens

Click on the **X** of each of the two screens to close them, if you have not done so already.



Prepare to Download

Now that we have a local screen registered as number one (1), we can download the project. If you have not downloaded a project to the panel, the System Mode Main Menu will be displayed on the **DirectTouch** panel when it is powered ON. If you *have already* downloaded, follow the steps on page 12 of the **DirectTouch** User Manual to display the System Mode screen on the panel. Press 'Download/Upload' on the panel to display the 'Download/Upload' screen. At this point the panel is waiting for ScreenCreator to send it data.

Download the Project

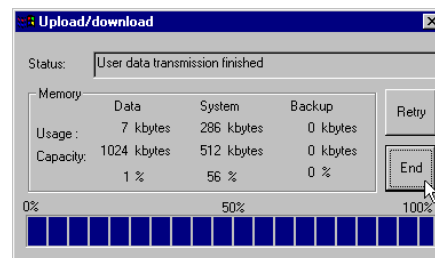
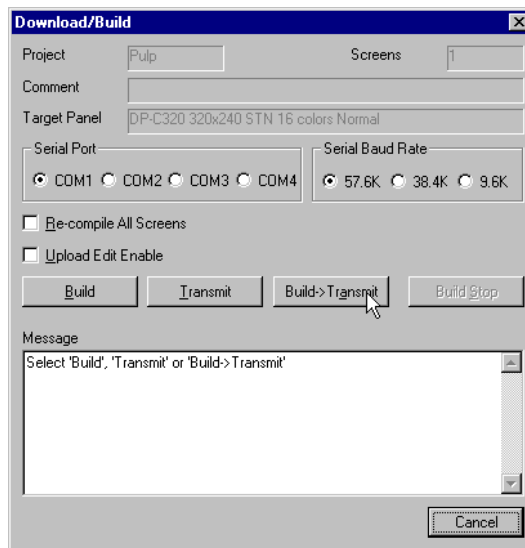
In ScreenCreator, click on the Download tool or select **Project > Download/Build...** and click on **Build & Transmit**. Watch the Message area for status of the Build process.

If there is a problem downloading (a warning box will appear), check the programming cable connections on both the PC and the panel, and try again.

Note: If you want to allow the project to be uploaded from the panel, check the Upload Enable box before downloading.

Also watch the status line on the Upload/Download window to see the progress of the Download process. The normal status messages are: Download started, User data is being deleted, User data is being transmitted, and User data transmission finished.

When the download is completed, click End as shown on the right.



Set up the Panel to communicate

After successfully downloading the project to the **DirectTouch** panel, press 'OK' on the panel and then set up the panel's RS-232C communication according to the instructions given in Appendix A. Press 'End' to return to the System Mode Main Menu.

The Pushbutton on the Panel

Press 'User Mode' to see your pushbuttons displayed on the 'Main' screen. Press the green pushbutton a couple of times to see it change states and hear the beep.

The Screen Select Pushbuttons on the Panel

Press the Screen Select Pushbutton labeled 'Next' on the 'Main' screen and notice the 'Pro1' screen is now displayed. Press the Screen Select Pushbutton labeled 'Back' on the 'Pro1' screen to return to the 'Main' screen. Trying these pushbuttons will give you an idea of how to switch back and forth between different screens.



The Global Screen and Local Screens

The Global Screen Icon



Each project has a single Global Screen, indicated by the icon on the left and having the same name as the project itself. All other screens are Local Screens. The Global Screen is used for items that you want to appear regardless of which Local Screen is being displayed at the time. Examples include: Alarms (or Faults), a clock or keypad, etc. Any part that is placed on the Global Screen must have selectable Access. This is discussed in detail elsewhere.

The Local Screen Icon



Local screens must be assigned a Registration number in order to be displayed on the panel.

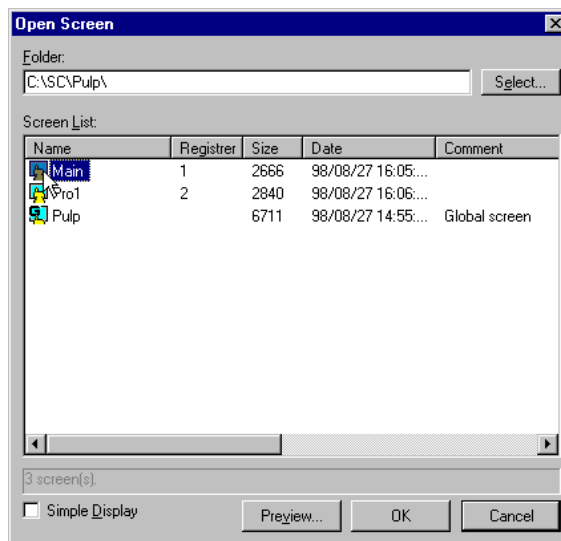


NOTE: The Global Screen does not have a Registration Number, and is the only screen that remains unregistered.

Open an existing Screen



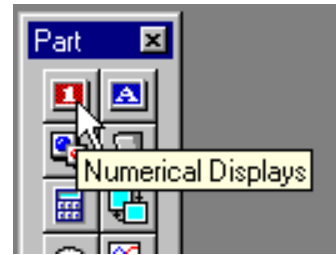
Click on the standard Windows "Open" tool (shown on the left) or select the **Screen > Open...** menu. Notice the three screens shown: the Global Screen 'Pulp'; and the Local Screens 'Main' and 'Pro1', listed in alphabetical order. To open 'Main', double click on its icon or click on it once to select and then click Ok.



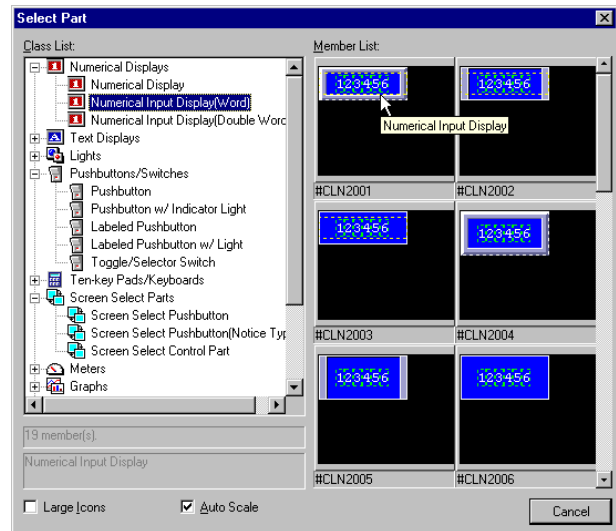
Add a Numerical Input Display

Finally, we will add a Numerical Input Display and a Ten-key pad. The ten-key pad will be displayed when the input display is pressed on the panel.

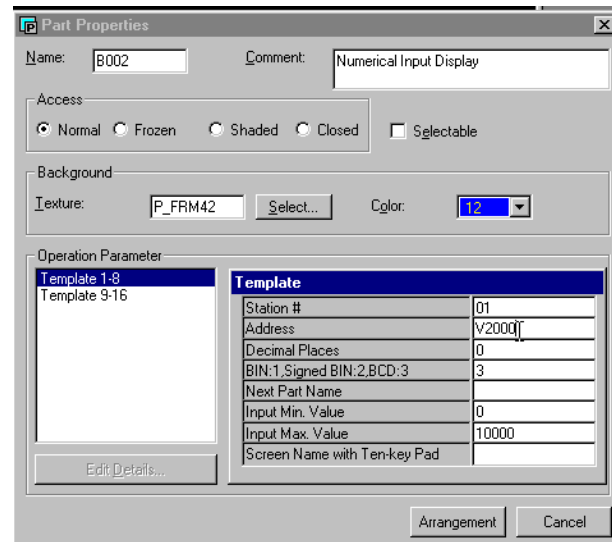
First, click on the Numerical Displays tool on the Part Toolbar to open the Select Part window.



Click the first Numerical Input Display (Word) icon as shown on the right and click on the one in the upper left corner.



Enter a PLC word address for numerical input display value.



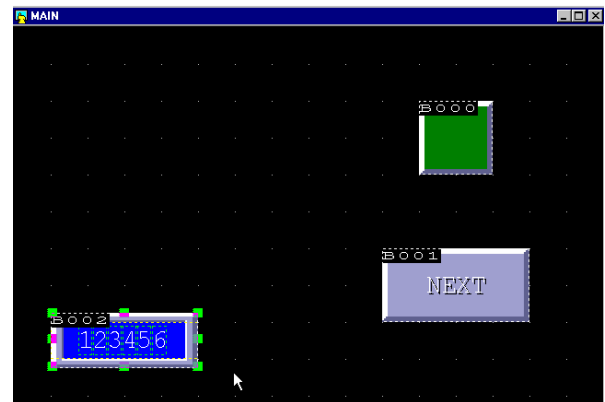
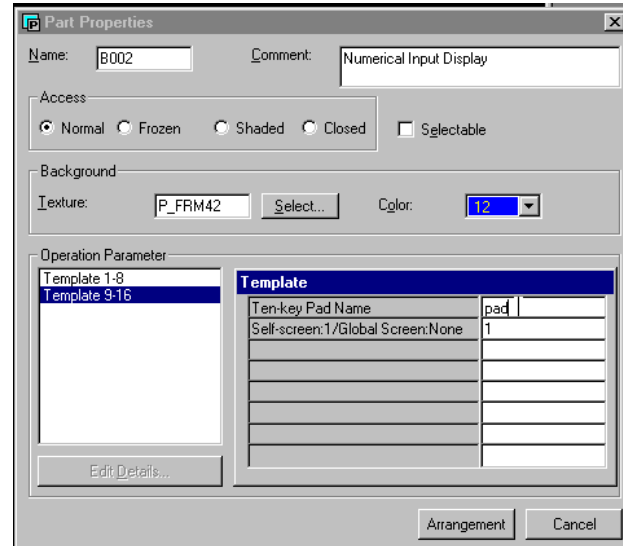
Add a Numerical Input Display (Continued...)

Next, select Template 9-16 and type in "pad" as the Ten-key pad Name.

Note: If you were going to place the key-pad on the Global screen (instead of the same—or Self screen), you would delete the 1 and type in the name of the Global screen under **Screen Name with Ten-key Pad** (in the previous window).

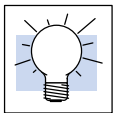
TIP: It is a good idea to place a single key-pad on the Global screen, which can then be accessed from any local screen.

Click *Arrangement* and place the Numerical Input Display part onto the screen, as shown.



Now we will add a Ten-key pad for numerical input and give it the name "pad".

NOTE: Any Numerical (or Text) Input Display must call a Ten-key pad or Keyboard with the correct name in order to function correctly.

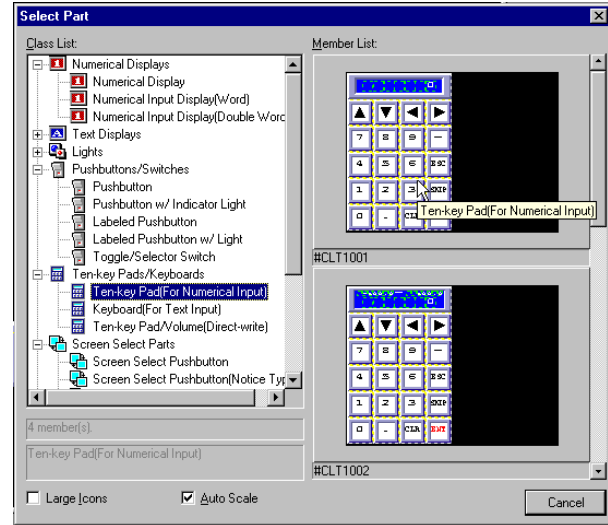


Add a Ten-key pad for the Numerical Input Display

Click on the Ten-key pads/Keyboards tool on the Part Toolbar to open the Select Part window.



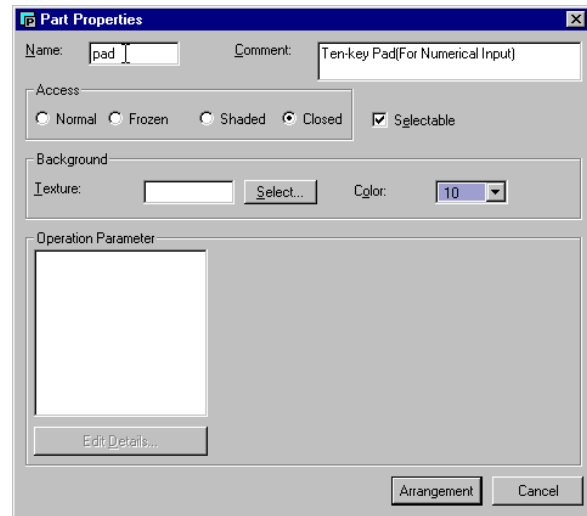
Select the first Ten-key pad as shown.



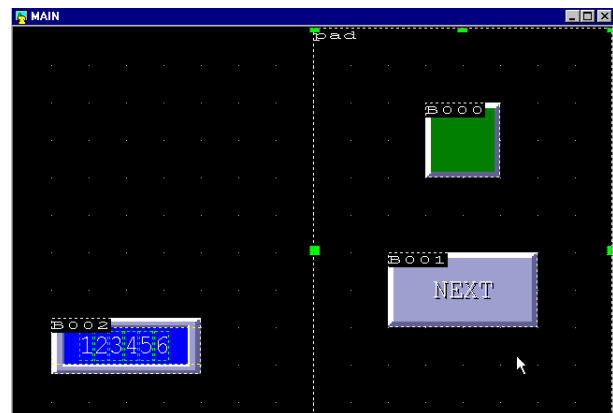
Add a Ten-key pad for the Numerical Input Display (Continued...)

Enter “pad” as the Name and select **Closed** and **Selectable** for the Access.

See the **Note** below!



Click *Arrangement* and place the Ten-key pad onto the screen, as shown.



Now when the Numerical Input Display is pressed on the panel, the Ten-key pad will appear on the screen, allowing the user to enter a number to be stored in the PLC address and be displayed on the Numerical Input Display.



NOTE: A Ten-key pad or Keyboard must be **Selectable** in order to be placed “on top of” other screen parts, and must be **Closed** in order to be invisible until called by a Numerical (or Text) Input Display!

If a key pad or keyboard part cannot be placed on a screen (by clicking *Arrangement*), it must be made Selectable first.

Tutorial Review

In this brief tutorial, you have learned quite a lot. Here is a review what you have done so far:

- a. Created a new project called 'Pulp' and selected the **DirectTouch** panel model and the PLC protocol.
- b. Closed a screen without saving.
- c. Created a new screen.
- d. Set the Zoom size to 200% as the default.
- e. Sized the Window to fit the Screen.
- f. Selected a pushbutton, configured it and placed it on the screen.
- g. Assigned the pushbutton to a bit address in the PLC.
- h. Saved the screen as 'Main'.
- i. Learned that the screen with a registration number of 1 is the default screen displayed by the panel when powered ON.
- j. Created a second new screen.
- k. Created two Screen Select buttons.
- l. Downloaded the project to the **DirectTouch** panel and used a pushbutton on the panel.
- m. Became acquainted with the Global Screen.
- n. Added a Numerical Input Display to a screen.
- o. Added a Ten-key pad to a screen for the Numerical Input Display.
- p. Opened an existing screen.