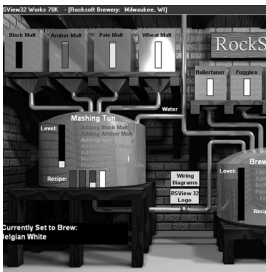
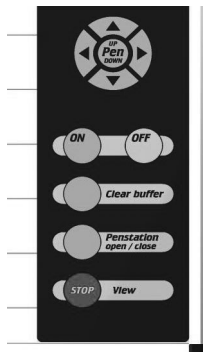


LISTEN.  
THINK.  
SOLVE.<sup>SM</sup>

# AB-Plot V. 1.x Software Manual



**USER MANUAL**

**(Catalog Number 1492-PLOTSOFT B)**



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## INSTALLATION

Before installing the Plotter Software, make sure that your system complies with the following requirements.

### SYSTEM REQUIREMENTS

- Personal computer with at least an 80486 processor
- Minimum RAM 8 MB
- Microsoft™ Windows 95 or later
- CD Drive
- Hard drive with at least 50 MB space available
- Windows-compatible mouse
- Screen resolution 640 x 480, 800 x 600 or 1024 x 768
- Open parallel communications port or USB port

### INSTALLING PLOTTER SOFTWARE

The following procedure assumes that you have already installed the Windows operating system and are familiar with the basic principles of it. If this is not the case, you should refer to the Windows User's Handbook.

**Note:** The screenshots correspond to Windows XP.

*Installation/Update procedure (Online):*

Use the following instructions to download the application.

1. Go to: [http://www.ab.com/industrialcontrols/products/terminal\\_blocks\\_and\\_wiring/marketing\\_systems\\_access/abplot.html](http://www.ab.com/industrialcontrols/products/terminal_blocks_and_wiring/marketing_systems_access/abplot.html)

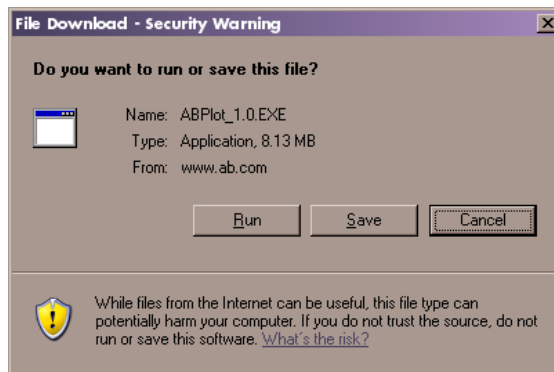
- Click the **Download ABPlot Software (Version 1.00 - 8.13 MB)** link.

**Figure 1 Download AB-Plot Software Link**



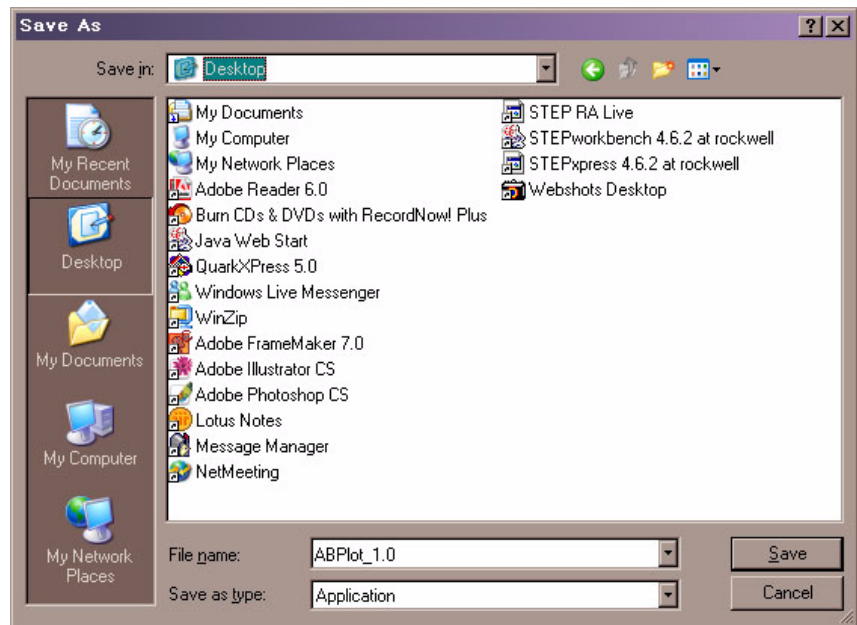
- When the “File Download” window pops up, click **Save**.

**Figure 2 File Download Window**



- When the “Save As” window appears, choose the location that the download will be saved. Keep the location simple, as you will need to find the file later.

**Figure 3 Save As Window**



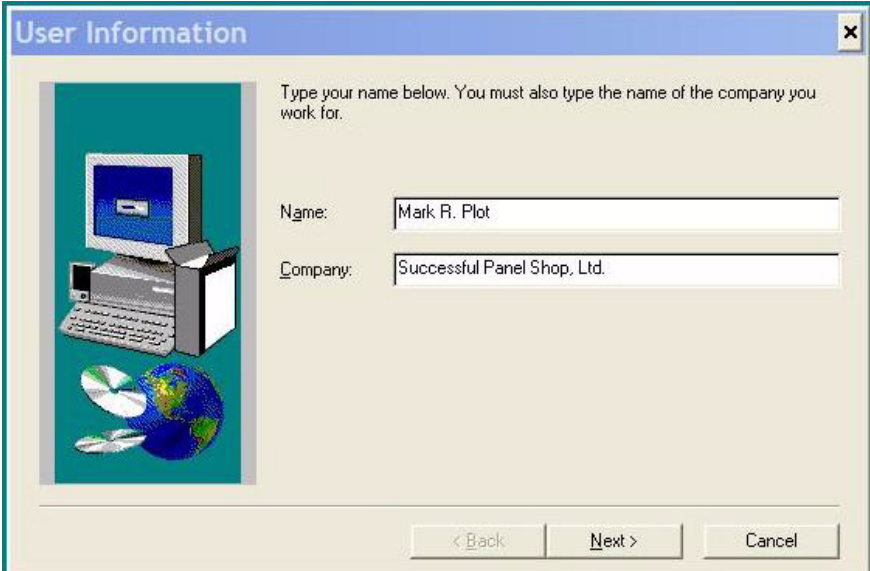
5. Once the file has saved to the specified location, find the file and double-click on it. This will start the installation. If any pop-up window appear asking if you would like to run the application or questioning security, click "OK" or "Yes."

*Installation/Update procedure (from CD):*

Use the following instructions to install the application from CD.

1. **Start Windows.**
  2. Insert CD in the disk drive.
  3. Close **all** other applications and click on "**My Computer**". Activate the CD drive.
4. The installation procedure begins and in the AB-Print dialogue window prompts you to enter your name and your company.

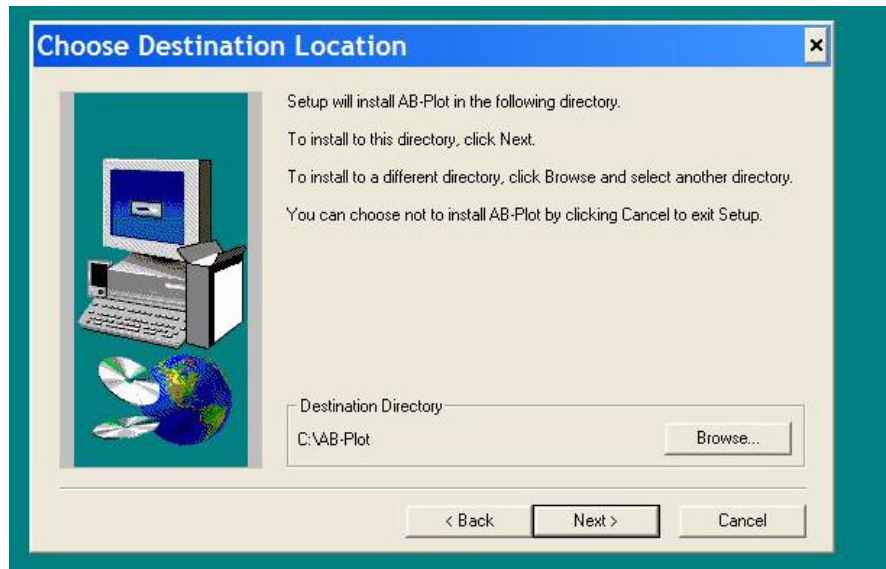
**Figure 4 The "User Information" Source Directory Dialogue Window**



The screenshot shows a Windows-style dialog box titled "User Information". The dialog has a blue title bar with a close button (X) in the top right corner. The main area has a light beige background. On the left side, there is a graphic illustration of a computer system (monitor, keyboard, mouse) and a globe with several CD-ROMs. To the right of the graphic, the text reads: "Type your name below. You must also type the name of the company you work for." Below this text are two text input fields. The first is labeled "Name:" and contains the text "Mark R. Plot". The second is labeled "Company:" and contains the text "Successful Panel Shop, Ltd.". At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel".

5. You are prompted to enter the drive or path to store the source files. After doing so, select **Next**.

**Figure 5 The “Choose Destination Location” Directory Dialogue Window**



6. Finally, the Setup Program displays the message that the installation has been successfully completed. Should you have any questions or encounter any problems, please refer to **Support and Updates** for further advice.

**Figure 6 The “Select Program Folder” Target Directory Dialogue Window**



## INSTALLING GENERIC PRINTER DRIVER

The plotter software requires that a generic printer drive be installed on a parallel or USB printer port for your computer.

The following procedure assumes that you have already installed the Windows operating system and are familiar with the basic principles of it. If this is not the case, you should refer to the Windows User's Handbook.

This procedure shows screens from Windows XP. Earlier versions of windows will have a similar procedure, but the screens may look different.

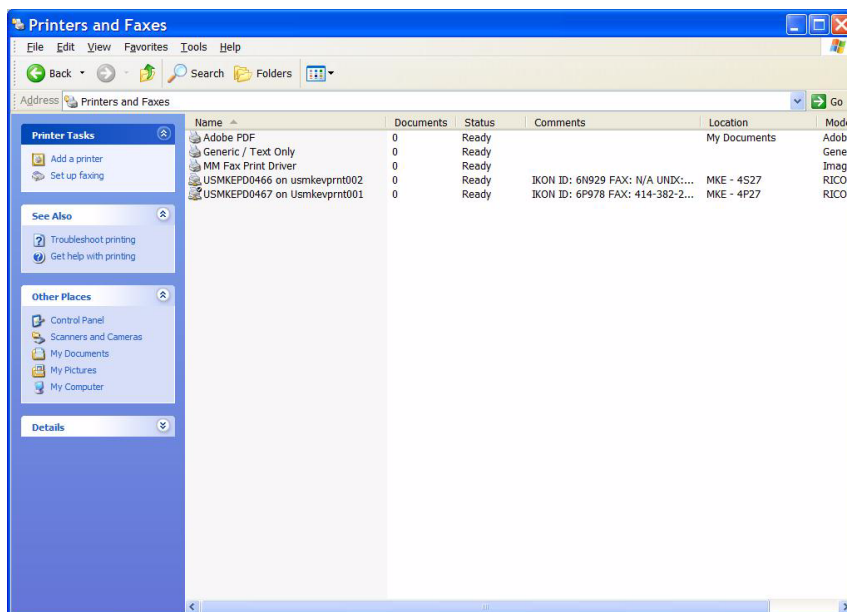
*Installation/Update Procedure Using a Parallel Port:*

Use the following instructions if you intend to connect with a parallel port. For USB port instructions, please refer to USB Port Instructions on page 14.

For Windows XP:

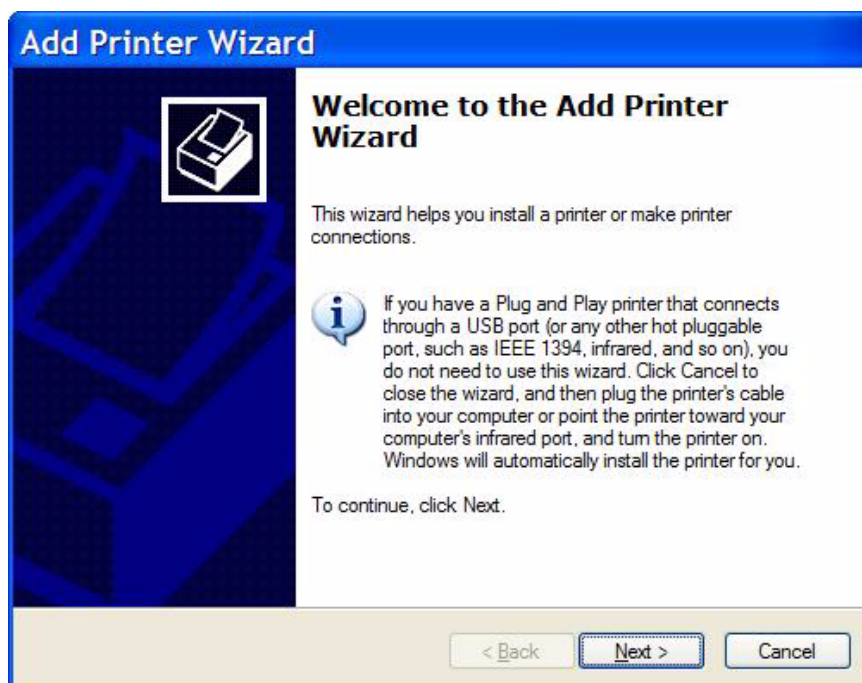
1. Click on **Start**, then select **Settings**, then **Printers and Faxes**. A similar window is visible:

**Figure 7 Selecting “Add a Printer” in Windows XP**



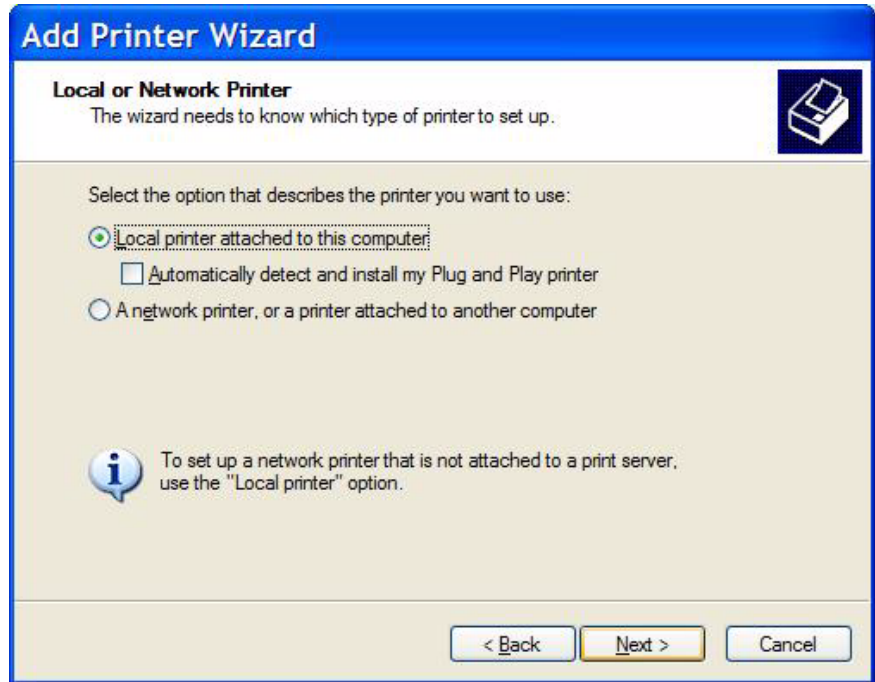
2. This brings up the “Add Printer Wizard”:  
Select **Next**.

**Figure 8 Add Printer Wizard**



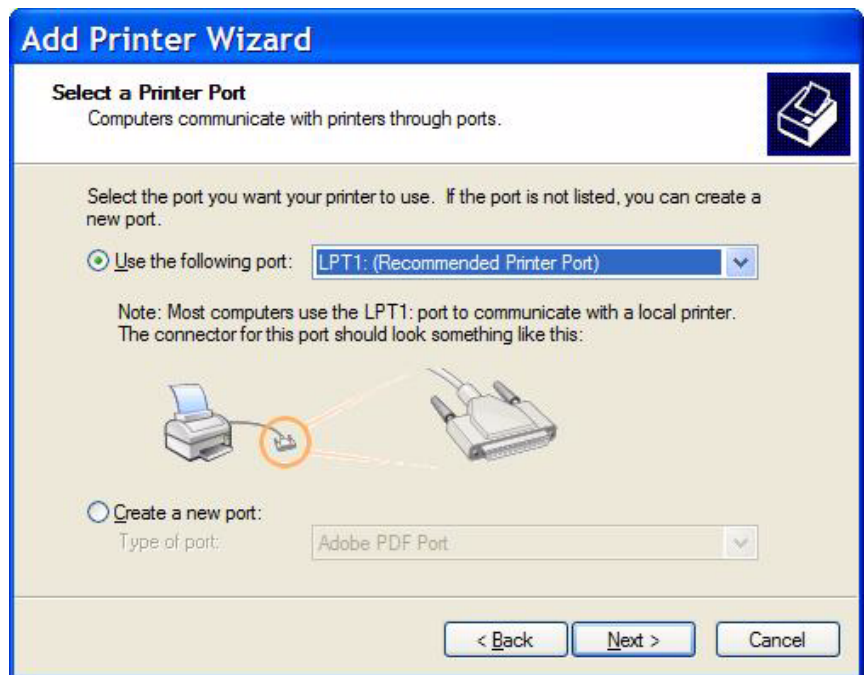
3. Select **Local**, then **Next**.

**Figure 9** Selecting a Local Printer



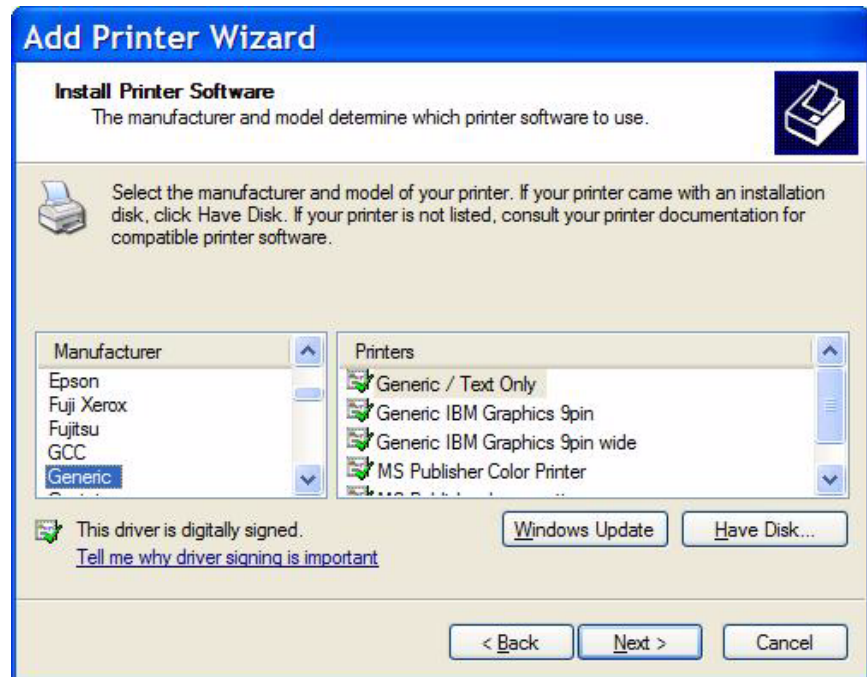
4. Select the parallel port for the plotter (typically LPT1) then **Next**.

**Figure 10** Selecting a Printer Port



5. Select **Generic/Text Only** driver, then **Next**.

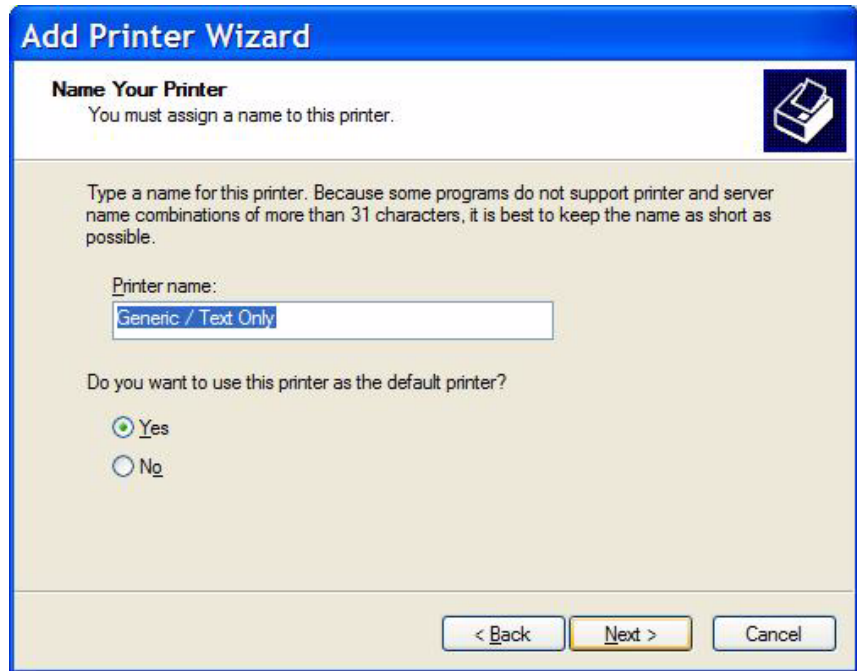
**Figure 11 Assigning the Generic/Text Only Printer Driver**





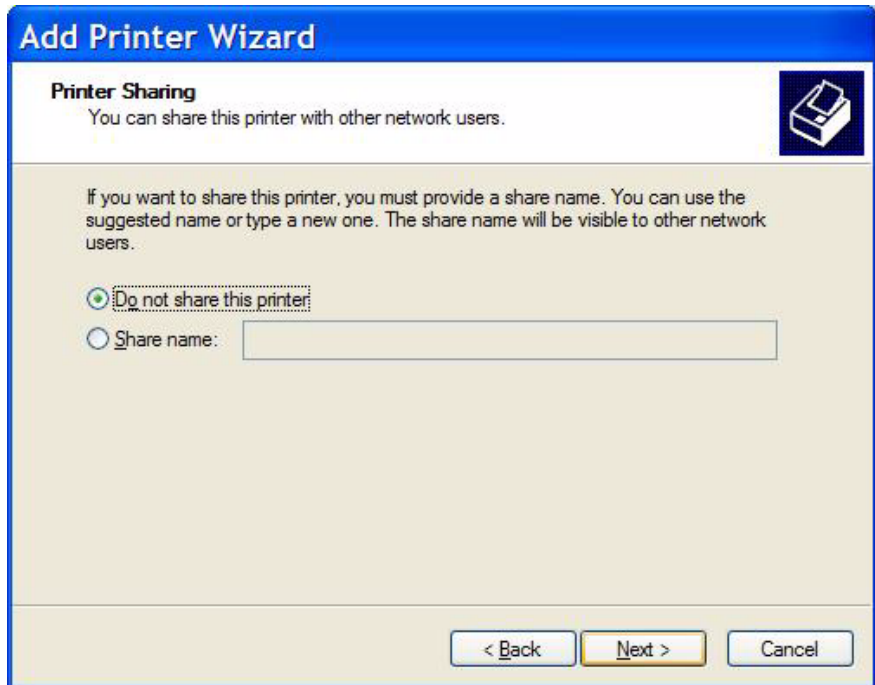
- 6. Name the printer. It has been named "Generic/Text Only" in this example. Select the printer as a default. Select **Next**.

**Figure 12 Naming the Printer**



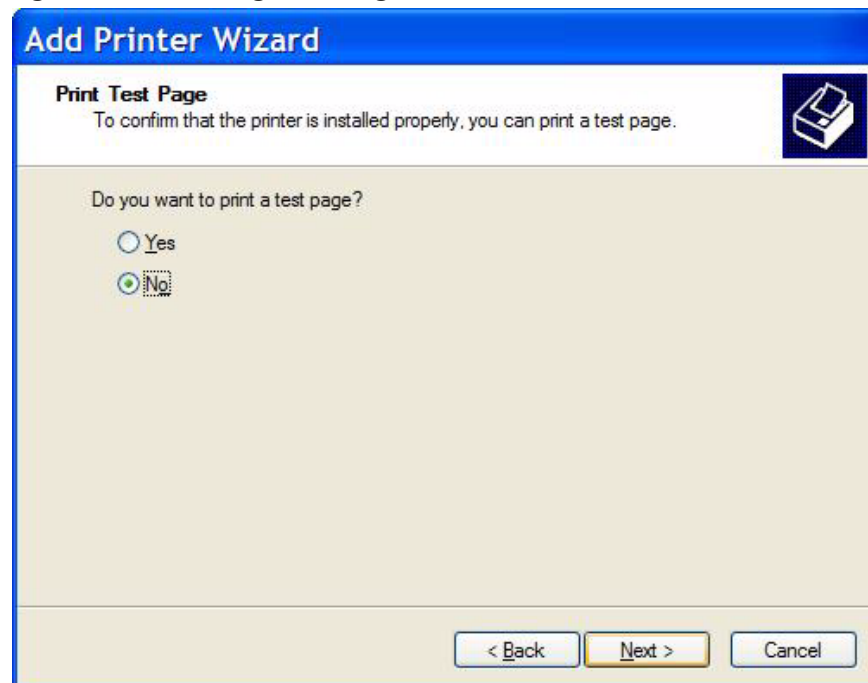
- 7. Do not share the printer. Select **Next**.

**Figure 13 Not Sharing the Printer**



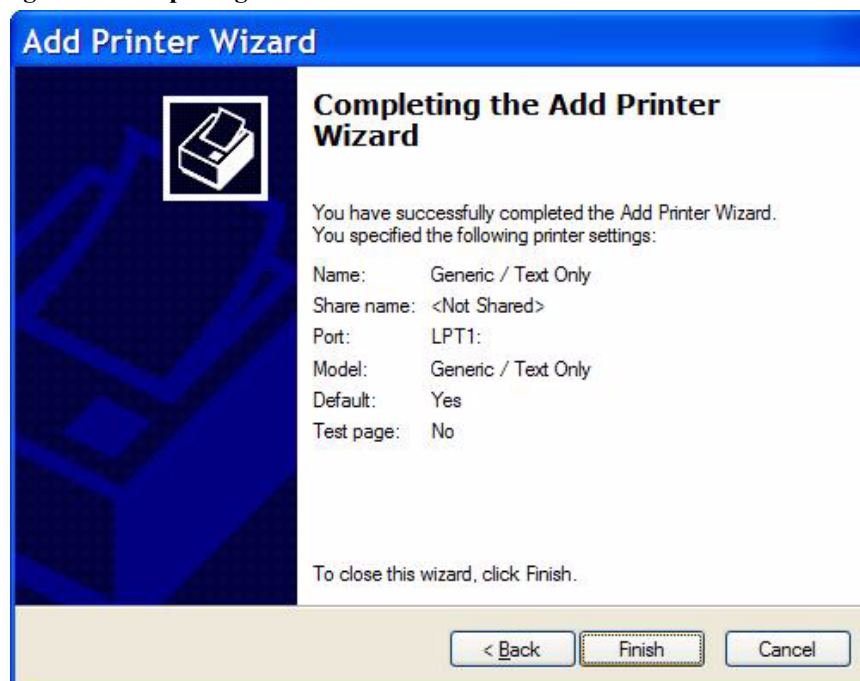


8. Do not print a test page. Select **Next**.



9. Select **Finish**.

**Figure 15 Completing Add Printer Wizard**



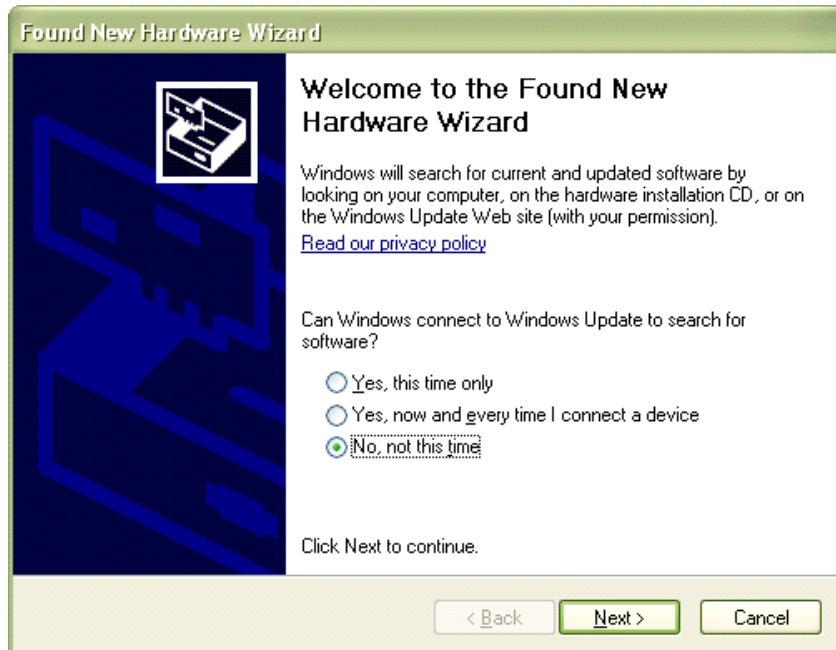
Now the printer driver has been assigned to the parallel port.

### USB Port Instructions

Use the following instructions if you will use a USB port to connect the printer.

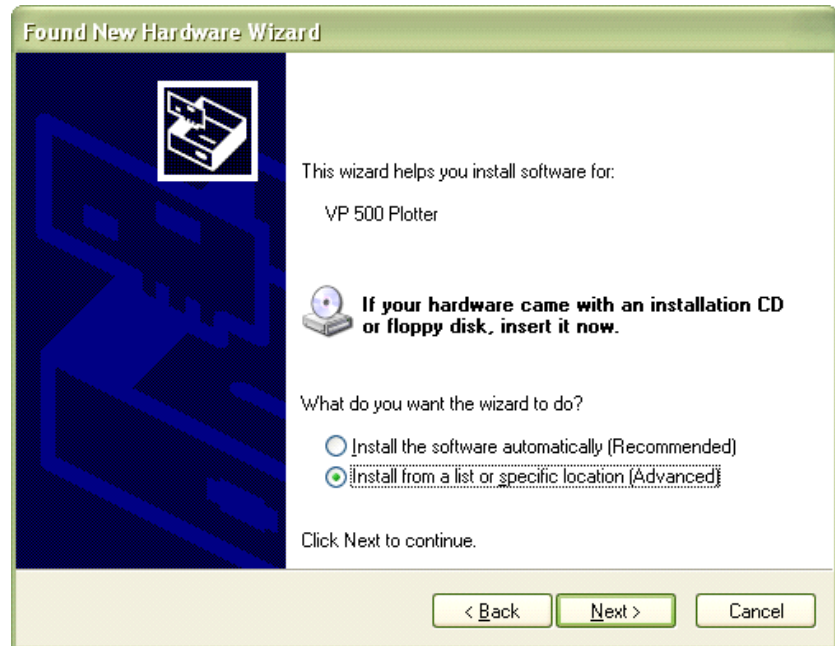
1. Connect the printer to the computer via the USB port. A similar window will appear.
2. Select “No, not this time.” and click **Next**.

**Figure 16 Found New Hardware Wizard**



3. Select “Install from a list or specific location (Advanced).” Click **Next**.

**Figure 17 Found New hardware Wizard-Installing Software**



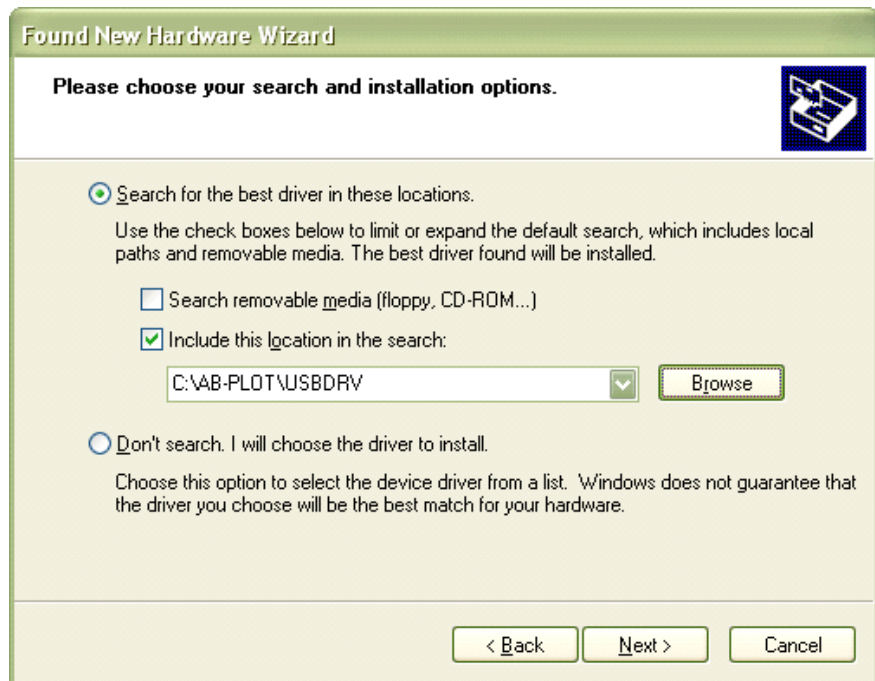
4. A new pop-up will appear. Go to the location of the AB-Plot software and select the “USBDRV” folder. Click **OK**.

**Figure 18 Browse for Folder Window**



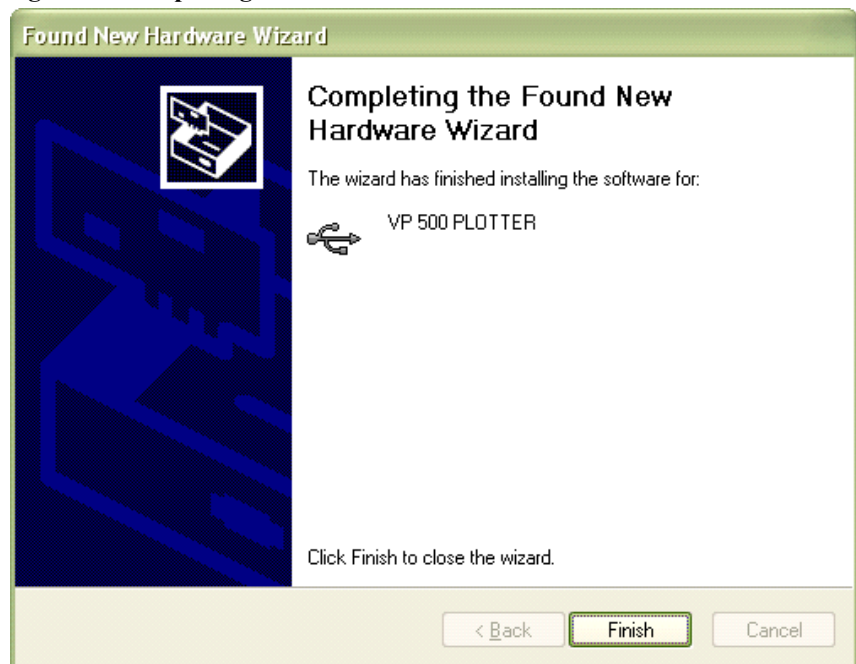
- In the “Found New Hardware Wizard,” the wizard will automatically put in the location of your software as a search option. Click **Next**.

**Figure 19 Found New Hardware Wizard-Installation Process Options**



- Once the wizard has finished installing the driver, click **Finish**.

**Figure 20 Completing the Found New Hardware Wizard**



## AN INTRODUCTION TO PLOTTER SOFTWARE

These instructions guide you step by step to start PLOTTER SOFTWARE and calibrate the plotter.

To do this you must have:

- Installed the AB-Plot software correctly
- Connected the Plotter to the computer correctly.

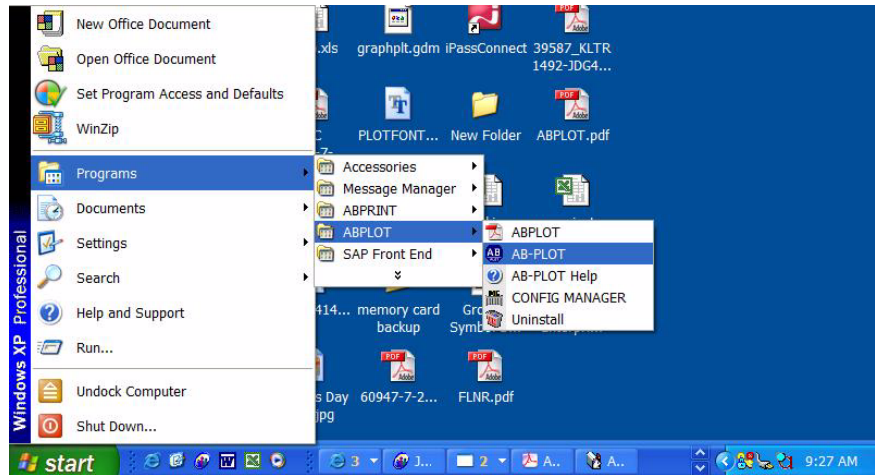
## STARTING THE PLOTTER PROGRAM

Start the program by opening the **START** menu, and navigating to:

Programs/ABPLOT/AB-PLOT

**Note:** The first time you open the software, you may be asked “Would you like to install the sub program for long file names support?” Select Yes. Installing this program allows the user to assign file names longer than 8 digits.

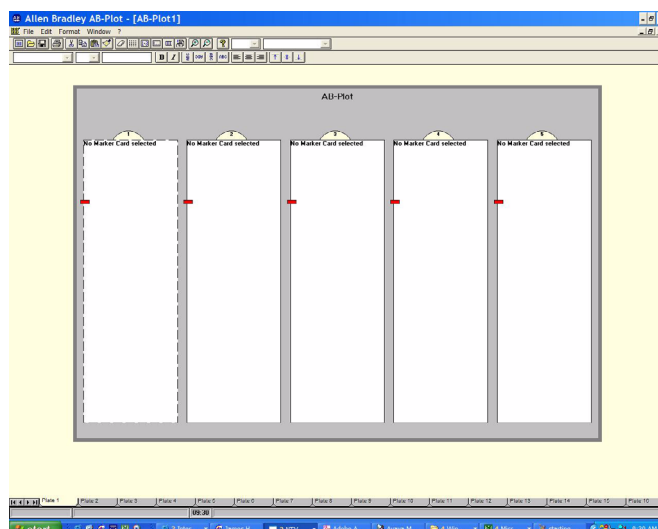
**Figure 21 Starting the AB-Plot Software**



## CALIBRATING THE PLOTTER PLATE

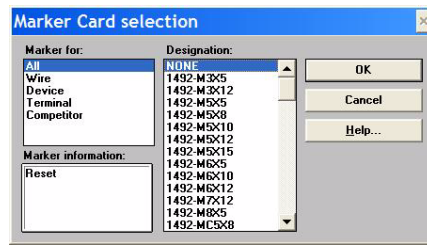
1. Double-click on the plate location for the first marker card and select the **type of marker** you require from the list.

**Figure 22 The Plate Location Window**



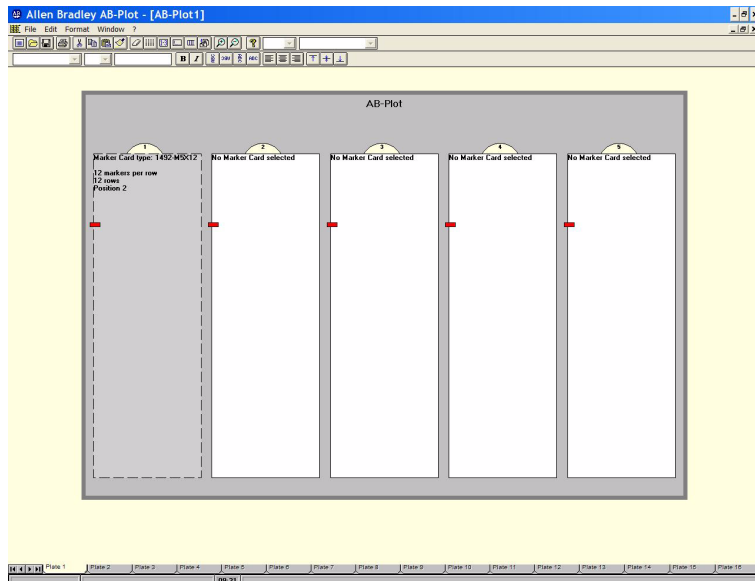
2. Select **OK** in order to call up the **Input Screen**.

**Figure 23 The Marker Card Format Window**



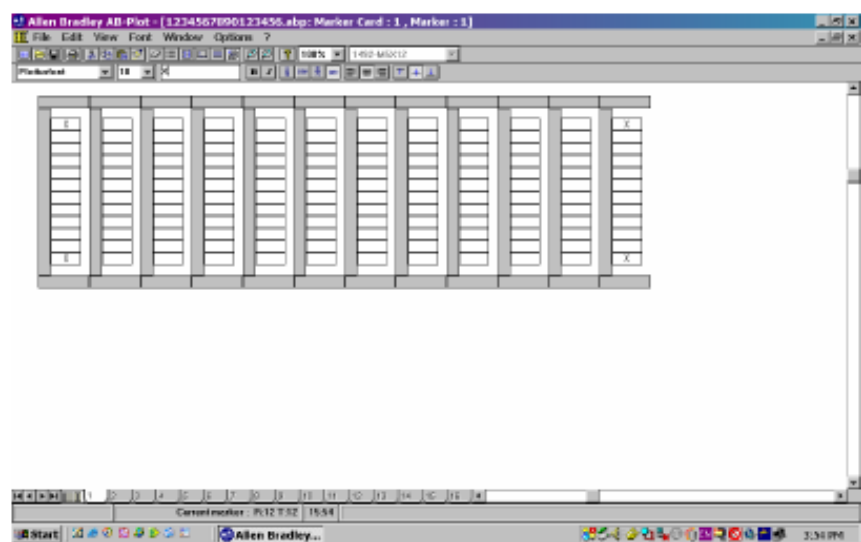
3. Double click on the highlighted plate location to display the **Input screen**.

**Figure 24 The Plate Location Window with Marker Style Assigned**



4. The screen now contains a representation of the Marker Card you have selected. The current marker, bottom left, is shown highlighted. Type an X on the 4 markers in the corners of the marker card.

**Figure 25 The Input Screen**



5. Install a pen in the lower left penholder of the plotter. Install the appropriate marker card in the respective plate location.  
**Hint:** You can avoid wasting marker cards during this calibration by taping a clear transparency over the entire marker card.


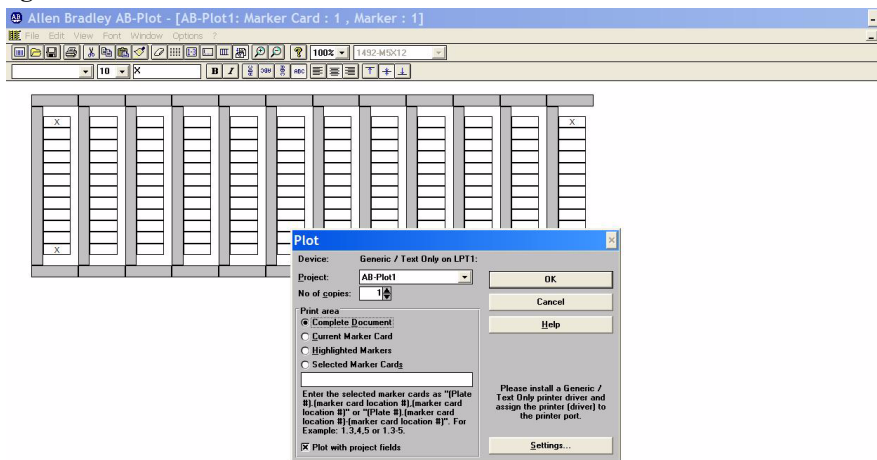
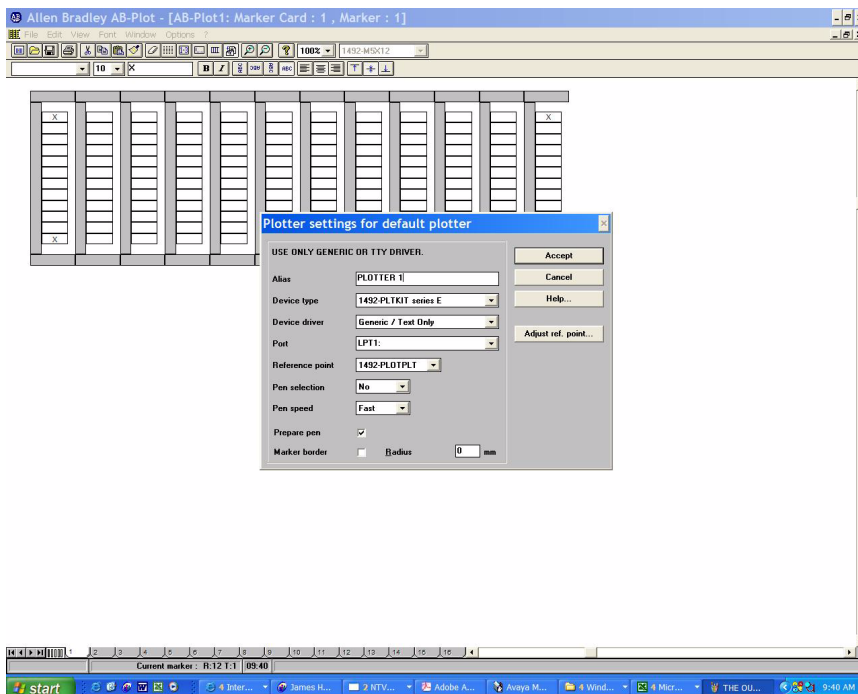
6. Next, select the "File" menu, then "Plot..." or press the button  on the toolbar; the Plot window then appears (make sure that the Plotter is switched on and loaded with the appropriate Marker Card).

Figure 26 The Plot Window

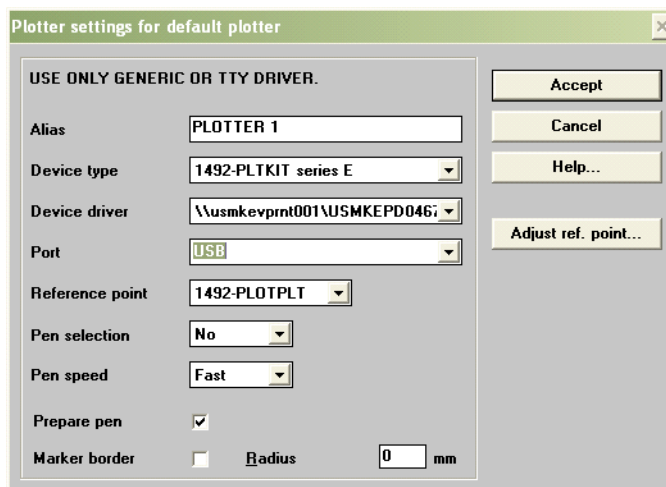


7. Click on the "Settings..." button; the settings for the default plotter window will open, at which point you may set various plotter settings. **Note:** Refer to Figure 27 The Plotter Settings Window (Parallel Port Connection) if you connected using a parallel port. Refer to Figure 28 The Plotter Settings Window for Default Plotter (USB Connection) if you connected using a USB port.

Figure 27 The Plotter Settings Window (Parallel Port Connection)



**Figure 28**The Plotter Settings Window for Default Plotter (USB Connection)

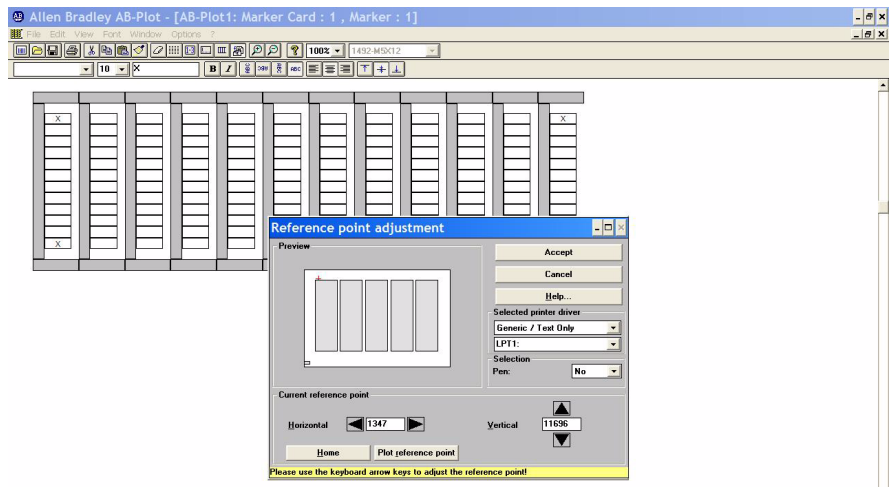


8. Select the appropriate device type.
9. In order to calibrate the plotter, select the **Adjust ref. point . . .** button. This will bring up the Reference Point Adjustment window.



10. To move the plotter arm to the calibration cross at the upper left corner of the plotter plate fixture, do either of the following:
  - a. Click on the arrow buttons on the computer screen.
  - b. Click on either of the numbered boxes, then press Enter on your keyboard. To make adjustments, either use the arrow buttons on the computer screen or type in a different number.

**Figure 29 The Plotter Plate Calibration Window**



**TIP**



Use transparent tape to avoid marking the plate.

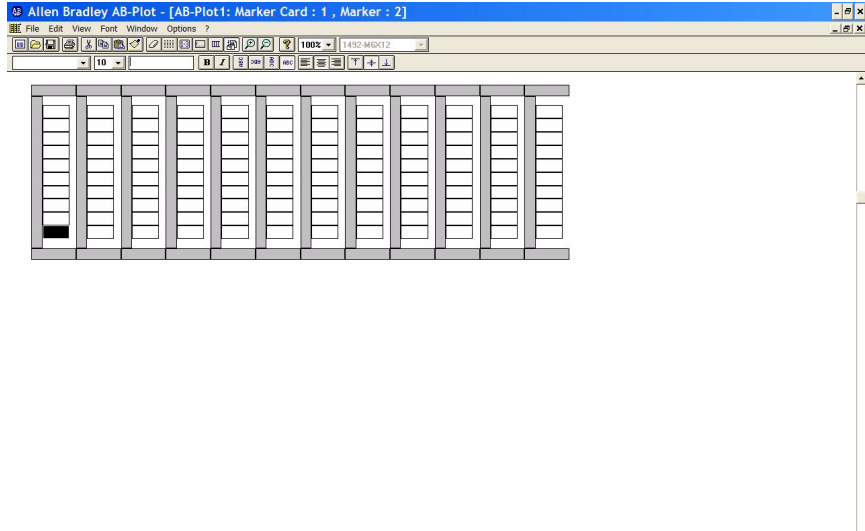
The pen should make a mark at the center of the cross of the plotter plate fixture. If this mark is not exactly on center, adjust the Horizontal and Vertical values until the mark is centered on the crosshairs. (Note: 1 plotter unit = 25  $\mu\text{m}$  = 0.001 inches)

11. Press "Plot Reference Point" to verify calibration
12. Select "Accept" to close the plotter plate calibration window after calibration
13. Press "Accept" to accept the plotter settings. Verify that all settings are accurate.
14. Select **OK** from the Output Window (Figure 26), then select continue from the Plot Preview Window. The plotter will now plot an X on the 4 corner markers. *If the X is not centered on the markers, repeat steps 6 through 9, but adjust the calibration point such that it is off-center of the crosshairs to an extent to compensate for the off-center dimension.*
15. Once the X plot at the center of the 4 corner markers, the system is calibrated and you are ready to plot on markers.
16. Exit the Input Screen by selecting "**File**", then "**Close...**". Exit the Plate Location Window by selecting "**File**", then "**Close...**".

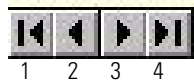
## THE INPUT SCREEN

Double-click on a **marker card location** in the Plate Location Window (see Figure 22), then select a **Marker Card Type**. This brings up the Input Screen.

**Figure 30 The Input Screen After Selecting a Marker Card Type**



The **scroll buttons** (located in the lower left corner of the screen) will bring the marker card from another plotter plate location (locations 1-5) to view. In particular, each scroll button will bring about another marker card as follows:



1. Marker Card configured in first location (location 1) of the Plotter Plate.
2. Marker Card configured in previous location of Plotter Plate.
3. Marker Card configured in next location of Plotter Plate.
4. Marker Card configured in last location (location 5) of the Plotter Plate.

### THE INPUT FIELD

Enter data into the first marker by typing the desired information on the keyboard. The text appears on the marker and in the text field of the formatting bar (next to the font size).

After loading the Input Screen (Figure 25), the marker on the bottom left of the Marker Card is highlighted. This is the first marker. (Example: marker 1 in project 1 is the start marker in the figure below.)

**The sequence of labelling is illustrated by means of the numbers 1-20 shown next.**

Figure 31 Direction of Labelling

projectfield 1	projectfield 2	projectfield 3	projectfield 4	projectfield 5
4	8	12	16	20
3	7	11	15	19
2	6	10	14	18
1	5	9	13	17

There are three ways in which you can index to another marker in the marker card:

- 1. By means of the **ENTER** key, the user moves to the next marker within a row. At the end of a row, the user moves to the first marker in the next row.
- 2. By means of the **cursor keys**, the user moves one marker up, down, left or right each time.
- 3. By clicking with the **mouse**, every individual marker can be directly selected.

**Note:** As described above, the cursor keys move to another marker. However, after pressing the function key F2, these keys can be used to move within a text field in order to revise a text at the appropriate position. Pressing F2 again or **ENTER**, restores the original functions of the keys. A second line of text may be entered on a marker by pressing "Ctrl + **ENTER**".

The text entered in the text field may sometimes exceed the maximum number of characters possible on a marker. If the text shown on the marker is beyond the marker edges, it will not plot properly. Take care not to enter text which is too large, too long, or has too many lines of text.

Choosing a smaller font size will permit more characters to be written on a marker (see EDITING BLOCKS for further details).

**THE MENU BAR OF THE INPUT SCREEN***File*

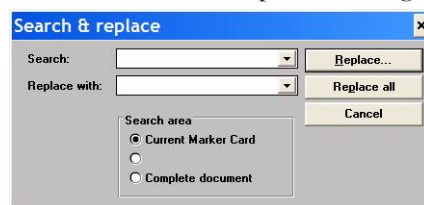
<b>New</b>	Opens the Marker Card format window for choosing a new Marker Card.
<b>Open</b>	Opens an existing document.
<b>Save</b>	(Shortcut: Ctrl + S) Saves the current document under its file name. In the case of a document which has not yet been saved, the standard dialogue field "Save as..." appears automatically.
<b>Save as</b>	Loads the standard dialogue field "Save as..." for saving the current document with path details.
<b>Close</b>	Closes the Input Screen and returns the user to the Plate Location Window.
<b>Import</b>	<p>(Shortcut: Ctrl + I) Opens a window for importing various data formats from CAD/CAE programs. The following formats can be read at present:</p> <ul style="list-style-type: none"><li>Eplan 4.1 terminal file *.wek</li><li>Eplan 4.1 cable file *.wec</li><li>Eplan 4.1 connection file *.wea</li><li>Eplan 4.1 ancillary equipment file *.wes</li><li>Ansi *.ans</li><li>UNIVERS/UNIPRINT *.mak</li><li>CAE33 *.els</li><li>MP data *.mpd</li><li>Ver. data *.ver</li><li>Text *.txt</li><li>Comma Separated File *.csv</li></ul> <p>For Microsoft Excel import see <b>Importing data and working with Microsoft Excel</b></p> <p>Other formats can be added upon request. Please contact our ServiceLine for further information.</p> <p><b>Step 1:</b> Select the desired start marker.</p> <p><b>Step 2:</b> Open the Import dialogue window and select the appropriate filter from the "File format" list.</p> <p><b>Step 3:</b> After confirming the selection with "OK", the data is imported into the document starting at the current marker position.</p> <p><b>Step 4:</b> If the imported marker data exceeds the labelling area of the Marker Card, then the next Marker Card is automatically written. If this has not yet been configured, then <b>AB-Plot</b> uses the last Marker Card type specified.</p>
<b>Export</b>	(Shortcut: Ctrl + E) Opens a window for exporting <b>AB-Plot</b> data in other data formats (.TXT).
<b>Plot</b>	(Shortcut: Ctrl + P) Opens the "Plot" dialogue window.
<b>Exit</b>	Closes AB-Plot

**Note:** The following menu, "**Edit**", can also be called up within the Input Screen as a pop-up menu. It appears at the position of the mouse pointer after pressing the right mouse button.

*Edit*

- Undo** (Shortcut: Ctrl + Z) Reverses the last action
- Reverse data of marked rows** (Shortcut: F9) First, highlight a row of markers (e.g. 1,2,3,4). Next, select this function. This reverses the markers to read (4,3,2,1)
- Increase Current Value** (Shortcut: Ctrl + N) If the value of a marker is a number  $n$ , this command will label the next marker with a value equal to  $n + 1$
- Duplicate Value** (Shortcut: Ctrl + D) This function copies the value of the current marker into the next marker
- Cut** (Shortcut: Ctrl + X) Copies the data of the highlighted marker to the clipboard and deletes the marked area
- Copy** (Shortcut: Ctrl + C) Copies the data of the highlighted marker or area to the clipboard
- Paste** (Shortcut: Ctrl + V) Inserts the data from the clipboard onto the Marker Card starting at the position of the current marker. In doing so, texts on markers already used are overwritten
- Paste with project fields** (Shortcut: Ctrl + B) Inserts the data from the clipboard with project field onto the Marker Card starting at the position of the current marker. In doing so, texts on markers already used are overwritten
- Multiple paste** (Shortcut: Ctrl + M) Opens an input window in which the user can enter the number of repetitions required of the data in the buffer. In this case too, the data is inserted starting at the current marker of the Marker Card. In doing so, texts on markers already used are overwritten
- Insert copied markers** (Shortcut: F5) Inserts the markers from the clipboard at the current position of the Marker Card, but in contrast to the normal paste command does not overwrite existing data but instead displaces it further down the Marker Card
- Search & replace** (Shortcut: Ctrl + F) Opens the dialogue box "Search & replace". This function locates a given text and replaces it with another. The procedure can be performed automatically ("Replace all") or manually ("Replace..."). The area of the search can be selected by means of the options buttons

The "Search and Replace" Dialogue Box



**Current Marker Card:** searches through the Marker Card currently shown

**Complete document:** searches through all the frames of the document opened

**Clear:** Opens a cascade menu with the following entries

**All:** Deletes both the text and the formatting information of the marked area

**Text:** Deletes the text of the marked area

<b>Format</b>	Deletes the formatting information of the marked area
<b>Clear Marker Card</b>	(Shortcut: Shift + Del) Deletes the text and formatting information of the whole Marker Card. The user is prompted to confirm the delete command before it is carried out
<b>Clear marked project field(s)</b>	Deletes the project fields marked Note: This is the only way to do this!
<b>Mark all</b>	(Shortcut: Ctrl + A) Marks the whole Marker Card
<b>Markers</b>	<i>Insert:</i> Empty markers are inserted into a Marker Card which is already written. The markers already written are not deleted but displaced to allow insertion of the new ones. <i>Delete:</i> This command deletes not only the labelling but the markers themselves as well. Unwritten markers automatically close up the gap left by the deleted markers
<b>Autofill</b>	(Shortcut: F8) Opens the Autofill window for quick and easy writing
<b>Project fields</b>	(Shortcut: F4) This menu point is used to write or delete the information field in each row

### View

<b>Horizontal</b>	Displays the Marker Card horizontally.
<b>Vertical</b>	Displays the Marker Card vertically.
<b>3D-look</b>	Displays the Marker Card with a perspective presentation.
<b>Zoom</b>	Opens a cascade menu with the entries 200%, 150%, 100%, 75% and 50%. This function can be used to enlarge or reduce the view of the Marker Card depending on the entry selected.

### Font

<b>Bold</b>	Sets the text attribute <b>bold</b> for the highlighted area of the Marker Card
<b>Italic</b>	Sets the text attribute <i>italic</i> for the highlighted area of the Marker Card
<b>Alignment</b>	Opens a cascade menu with the entries left, center, right and top, vertical center, bottom. These commands allow the user to stipulate the position of the text in the highlighted area of the Marker Card. The same functions are also available in the icon bar.
<b>Orientation</b>	This allows the orientation of the text on a marker to be specified (see <b>Text orientation and Plotter</b> for further details). The orientation applies to a highlighted marker or area. Text can be positioned at 0°, 90°, 180° and 270°. The menu point "0°" corresponds to the "normal" orientation. The 90°, 180° and 270° rotations are all counterclockwise. The same functions are also available in the icon bar.

*Window*

**Document No. #** Allows selection of open documents.

*Options (available in Card Edit view only)*

**Multiple lines** Switches the highlighted area to the multiple line mode.  
**Single line** Switches the Highlighted area to the single line mode.?  
**Help** (Shortcut: F1) Calls up the **AB-Plot** help routine.  
**About** Shows a dialogue box with information about the program

**THE AUTOFILL FUNCTION***THE AUTOFILL WINDOW***Figure 32 The Autofill Window**

The Autofill window is opened when in the Input Screen the entry "**Auto-fill...**" is selected from the "**Edit**" menu or function key F8 is pressed. This makes a number of marking functions available to the user which can be used to generate the consecutive numbering systems often employed when labelling electrical equipment (e.g. terminal blocks: X1.1, X1.2, X1.3,...; contactors: K1, K2, K3,...; PLC labels: E 0.1, E 0.2, E 0.3,... or A 0.1, A 0.2, A 0.3,...).

*THE FUNCTIONS OF THE AUTOFILL WINDOW*

The Autofill window is divided into several sections which contain various functions, options and input fields.

*Input*

The extent of the labelling is specified here. The given values refer to the marked area.

- Start value** Any numerical value with which the labelling is to begin.
- End value** Any numerical value with which the labelling is to finish
- Prefix** One or more alphanumeric characters added before the number
- Suffix** One or more alphanumeric characters added after the number
- Block** Another numeral which allows a block-type allocation of the labelling text. This figure defines the start value for the block-type allocation.

*System*

- Decimal 0-9** The start value must lie between 0 and 9. The decimal system is used for counting.  
**Examples:** step=1 ? start value=8, end value=2 ? sequence 8, 7, 6, 5, 4, 3, 2  
step=1 ? start value=2, end value=8 ? sequence 2, 3, 4, 5, 6, 7, 8
- Octal 0-7** The start value must lie between 0 and 7, i.e. octal notation.
- Hex 0-F** The start value must lie between 0-9 and A-F, i.e. hexadecimal notation.
- Alphanumeric** An alphanumeric character can be entered in the **base** section. Alphanumeric characters are, for example, **1, 2, 3,...7, 8, 9** or **a, b, c,...x, y, z** or **A, B, C,...X, Y, Z**, whereas, for example, **11, 123** or **aa, abc** or **AA, ABC** are not (these are character strings). Entering an upper- or lower-case letter means that the following values are also upper- or lower-case letters.  
**Example 1:** step=1 ? start value=X, end value=B ? sequence X, W, V,...D, C, B step=1 ? start value=B, end value=X ? sequence B, C, D,...V, W, X  
**Example 2:** step=1 ? start value=x, end value=b ? sequence x, w, v,...d, c, b step=1 ? start value=b, end value=x ? sequence b, c, d,...v, w, x
- Character string** Several alphanumeric characters may be entered in the **Source** section. Only an entry in the "Start value" field is possible; all the other fields in the **Source** section are inactive. Every highlighted marker is provided with the same text. **Examples of character strings:** **1234** or **abcd** or **ABCD** or **1a2Bd3**.
- PLC** This mode is used when the markers are to be provided with PLC-type labelling. When activating this option, the program provides an example of how **PLC (Programmable Logic Control)** labelling is arranged.



*Options* (This section provides the additional functions described below.)

<b>Step</b>	Determines the mode of counting, i.e. the increment between successive values. Example: step=1 ? 1 2 3 4; step=2 ? 1 3 5 7
<b>Block step</b>	Determines the mode of counting for blocks.
<b>Duplicate each value</b>	Specifies how many copies of one marker are produced (with the same text)
<b>Duplicate sequence</b>	Specifies how many times a block is repeated.
<b>Skip markers</b>	Specifies the number of markers to be skipped over before the next marker is labelled. Example: step=1 ? start value=1, end value=4 Skip markers=0 ? 1 2 3 4 Skip markers=1 ? 1 2 3 4

*Text*

<b>Add text</b>	Choosing this option adds the data (in the "Source" section) to existing texts. When switched off, data entered in the "Source" section overwrites existing texts. This option can be selected in any labelling mode.
<b>Before existing text</b>	Characters are added to existing texts in the form of a prefix.
<b>After existing text</b>	Characters are added to existing texts in the form of a suffix.

*Project Fields*

<b>Prefix</b>	One or more alphanumeric characters added to the start value in the form of a prefix.
<b>Row counter</b>	This number determines the value of the first field. Only numerical characters are possible.
<b>Suffix</b>	One or more alphanumeric characters added to the start value in the form of a suffix.

*Formatted Sequence*

<b>Left field</b>	The left-hand section of the formatting field applies to the block information. A number of control characters are available for formatting.
<b>Right field</b>	The right-hand section of the formatting field applies to the start to end value characters. A number of control characters are available for formatting.

Clicking on the "OK" button executes the labelling functions which have been selected. In addition, the values entered in the Autofill window are checked for their validity. If the labelling area specified is invalid (e.g. the end of a block lies before the start or the start/end value is missing), then an error message appears. After acknowledging the error message, the user has the chance to check the entries and make changes if necessary. The "Cancel" button closes the Autofill window. No marking functions are carried out.

*Control Characters for Autofill Functions*

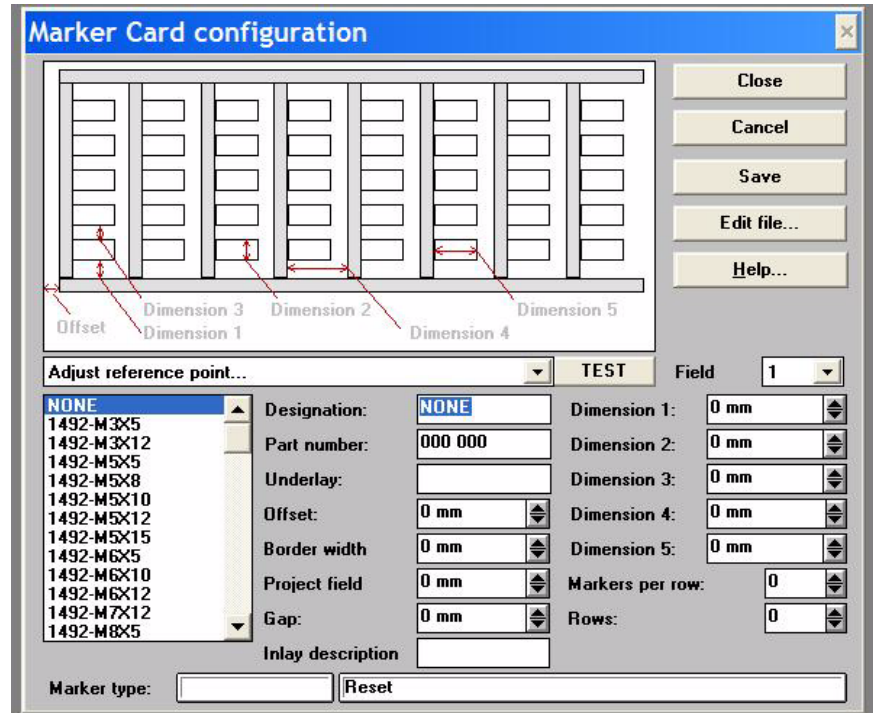
The following special characters may be used to execute user-defined numbering formats:

- 0 (zero)** Results in a digit on the marker instead of a zero. If the resulting value at this position does not contain a digit, then **AB-Plot** produces a zero.  
If the start value is 1 and the end value 3, then entering **0#.00** in the formatting field results in **01.00 ? 02.00 ? 03.00** on the marker.
- #** Results in a digit on the marker instead of "#". If the resulting value at this position does not contain a digit, then **AB-Plot** produces a blank space.  
If the start value is 1 and the end value 3, then entering **# \$** in the formatting field results in **1 \$ ? 2 \$ ? 3 \$** on the marker.
- , (1000s separator)** Divides large numbers into blocks of three digits. If the start value is 1000000 and the end value 1000003, then entering **#,###,### \$** in the formatting field results in **1,000,000 \$ ? 1,000,001 \$ ? 1,000,002 \$ ? 1,000,003 \$** on the marker.
- (minus sign)** Adds a minus sign to the number.  
If the start value is 1 and the end value 3, then entering **-#** in the formatting field results in **-1 ? -2 ? -3** on the marker.
- + (plus sign)** Adds a plus sign to the number.  
If the start value is 1 and the end value 3, then entering **+#** in the formatting field results in **+1 ? +2 ? +3** on the marker.
- %, \$, etc.** Adds the given sign to the number as a prefix or a suffix.  
If the start value is 1 and the end value 3, then entering **# %** in the formatting field results in **1% ? 2 % ? 3 %** on the marker.

**EDITING MARKER CARD CONFIGURATIONS**

THIS SHOULD ONLY BE DONE IF THE PLOTTER SYSTEM CANNOT BE CENTERED ON A GIVEN MARKER BY ADJUSTING THE CALIBRATION POINT. THIS ACTIVITY WILL CHANGE THE .GDM FILES IN THE COMPUTER PROGRAM. This may be necessary when there are large fluctuations in humidity, which can affect the dimensions of a marker card. Typically, only dimension 4 requires modification.

Figure 33 The Marker Card Configuration Window



Close all marker cards before modifying the configurations.

The Marker Card Configuration window is called up from the Program Screen via the "Edit Marker Card configurations..." command in the "Options" menu. This window is used for configuring existing or new Marker Card types and for a fast check of existing configurations.

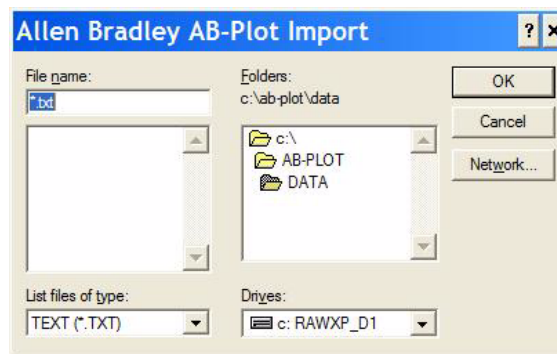
- Information** The list (bottom left) contains all the Marker Card types contained in the GRAPHAB.GDM configuration file. If you wish to edit an existing Marker Card type, then click on the appropriate type and alter the details given in the various fields. To do this, click on the respective field and use the spin buttons or enter the value directly via the keyboard.
- Dimension 1-5** The dimensions 1-5 are to be specified in millimeters. The corresponding dimension is shown in red in the diagram while being edited. A sketch of the dimensions is shown in the configuration window.
- Underlay** This field shows the color of the spacer to be used for a given marker card.
- Part number** This field shows the catalog number of a given product.
- Offset** Value for a reference point compensation depending on the type of Marker Card
- Marker Type** This field provides information whether a marker is suitable for terminal blocks, wires, devices or competitor products as well as additional information for the applicable products for the selected marker.
- Save** The "Save" button enables you to overwrite the configuration file with the new values.

- Close** The "Close" button exits the Marker Card Configuration window. Any values which have been altered are retained as long as the application remains in operation and are then saved.
- Cancel** The "Cancel" button closes the Marker Card Configuration window and ignores any changes.
- Important** The values of the first list entry cannot be stored. This type of Marker Card assumes that a Marker Card has already been selected.

## The Import and Export of Data

### *Importing Data and Working with Microsoft Excel*

**Figure 34 The Import Window**



The import function is started by selecting "Import..." from the "File" menu of the Input Screen. The import window then appears. This function can be used to read in data from other applications, e.g. CAD/CAE programs, and enter this on the markers. The number of data formats that can be imported has been extended; the following file formats can now be imported:

Allen Bradley	*.abp
Ansi	*.ans
Eplan 4.1 terminal	*.wek
Eplan 4.1 cable	*.wec
Eplan 4.1 connection	*.wea
Eplan 4.1 ancillary equipment	*.wes
UNIVERS/UNIPRINT	*.mak
CAE33	*.els
MP data	*.mpd
Ver. data	*.ver
Text	*.txt
Comma Separated File	*.csv

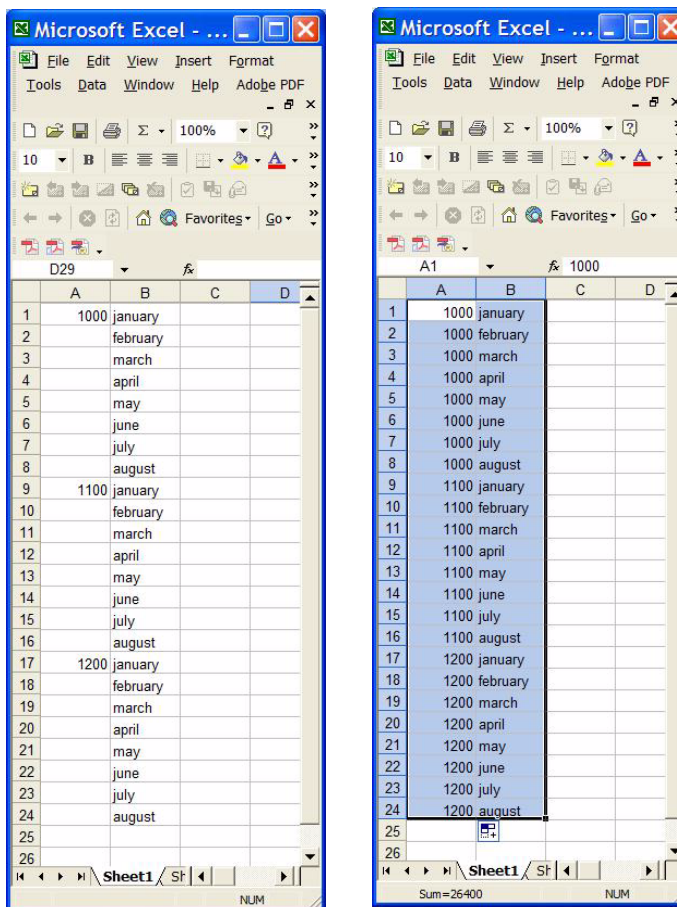
After selecting the file which is to be imported, the program prompts the user for the number of repetitions. If the data is to be inserted several times, then the markers with the same labelling are inserted in direct succession, i.e. in the case of insertion twice: 1, 1, 2, 2,...

The import of data from programs like **Microsoft Excel** is also possible via the simple copy function. To do this, the data is marked and copied in the other application (e.g. in Excel with Ctrl + C) and then pasted directly into **AB-Plot** from the clipboard.

Various options can be selected here in order to recognize/generate project fields.

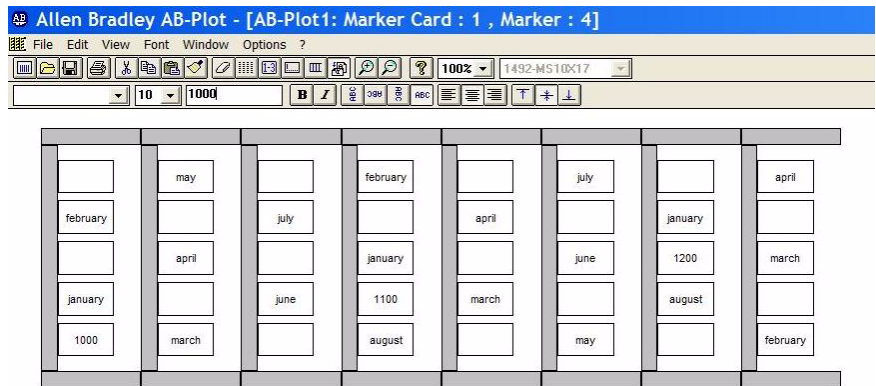
For example, if a two-column table is created in Excel and the marked area of the two columns A and B is copied to the clipboard, then one of the following paste variations may be chosen.

**Figure 35 Importing Tables Created in Microsoft Excel**



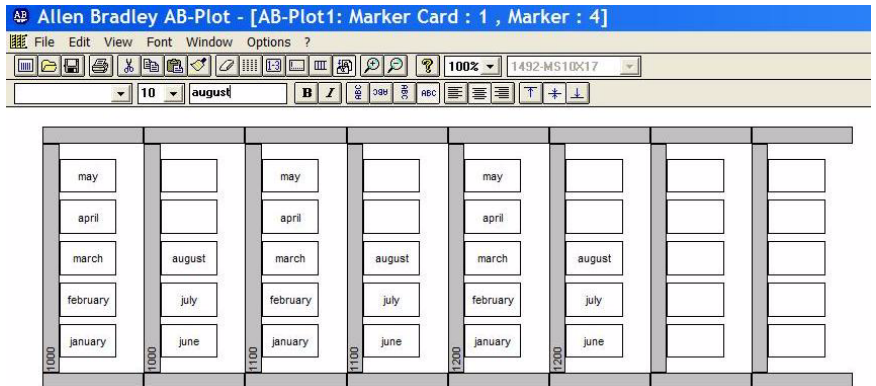
**Ctrl + V** The copied columns A and B are recognized as marker texts and entered in the sequence: 1996, Jan, space, Feb, space, etc. The data is read from left to right, with returns as well. This corresponds to the normal "Paste" command in the "Edit" menu (see Figure 35).

**Figure 36 The CTRL + V Fill Algorithm**



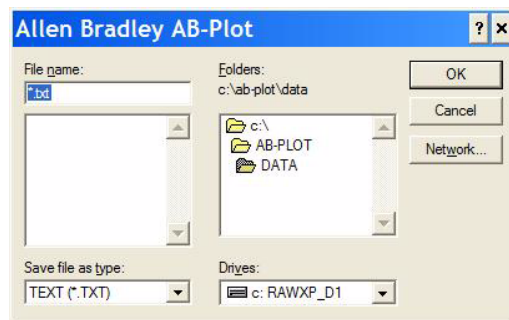
**Ctrl + Shift + V** The first column of the table is taken as the project field and empty markers are filled.

**Figure 37 The CTRL + SHIFT + V Fill Algorithm**



*EXPORTING DATA*

**Figure 38 The Export Window**

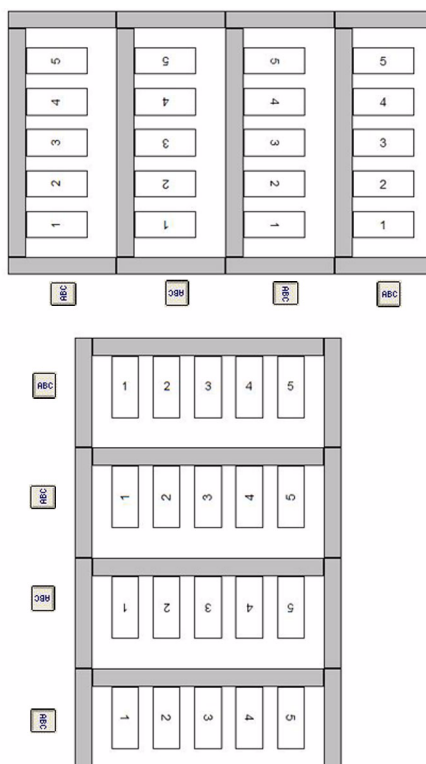


The export function is started by selecting "Export..." from the "File" menu of the Input Screen. The export window then appears. One file format has been added to the export function; files can now be exported in the following formats:

**Text \*.txt**

In this format, project fields and marker data are exported together. If the data to be exported is stored the program automatically opens another window with the designation "**Export**".

**Note:** When exporting from one marker format to a different format the input text is not adjusted to the size of the marker.

**TEXT ORIENTATION AND PLOTTER***SPECIAL FEATURES OF PLOTTING AND SCREEN PRESENTATION***Figure 39 Different Ways of Labelling**

The definition of the **0° orientation** relates to a **Marker Card** in the **vertical view** with the project field at the top. Successive 90° rotations are all made counterclockwise.

*PLOTTERFONT TYPEFACE*

The default typeface, **Plotterfont**, is used for the on-screen presentation. This font is added to the table of Windows fonts upon installing the program.

## PLOTTING

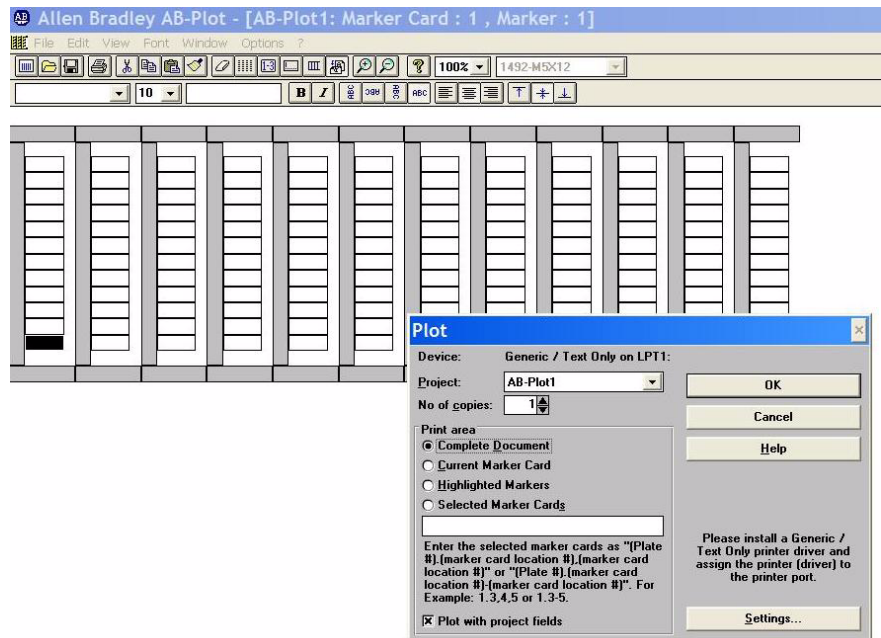
The plotting of markers and project information is carried out in the following steps:


1. A plot file with the values of the Plotter installed is created and saved to the hard drive.
2. The plot file (print job) is sent to an output device.

Ensure the plotter plate has been calibrated prior to plotting.

### The Output Window

Figure 40 Configuring the Output



The Output window is called up from the Marker Card or Input Screen by selecting the command "Plot..." from the "File" menu, or by actuating  button in the toolbar.

This window indicates the plotter and port in use. The **Project** field contains a list of all the documents currently open. The document to be printed can be determined by clicking on the file name.

The number of copies of a document which will print is selected in the **Copies** field by actuating the spin buttons.

#### Area

**Complete document**  
**Current Marker Card**

All Marker Cards are plotted.  
 Only the current Marker Card is plotted.



<b>Highlighted marker</b>	Only highlighted markers are plotted.
<b>Selected Marker Card</b>	Only selected Marker Cards are plotted.

You can configure the parameters of the plotter/printer by actuating the "Settings..." button.

Pressing "OK" starts the plot output; "Cancel" exits the Output window without starting the plot.

## PLOTTING

### *PLOTTER CONNECTION*

The plotter is connected to the computer by means of a parallel or USB cable. It is not necessary to set the plotter dipswitches for parallel operation with a 1492-PLTKIT Series E plotter. However, when using the 1492-ABPLOT software with a 1492-PLTKIT Series C or D plotter, the dipswitches must be reset as follows:

#### DSW1:

1. Off
2. Off
3. Off
4. Off
5. Off
6. On
7. On
8. On

#### DSW2:

1. On
2. On
3. Off
4. On
5. On
6. Off
7. Off
8. Off

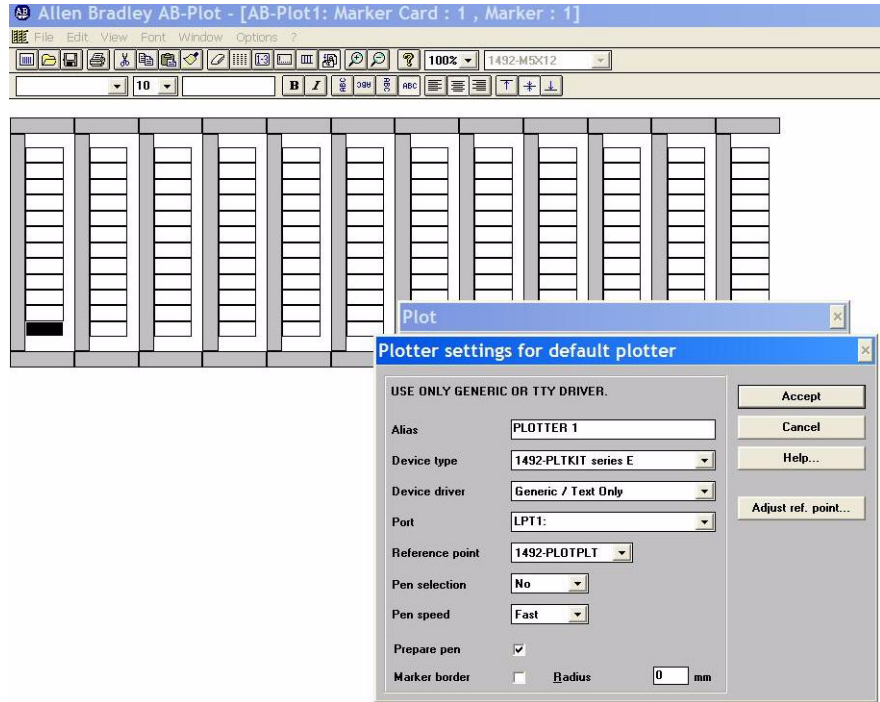
Please refer to your plotter handbook for further information regarding the plotter connection.

### *PLOTTING*

The plot job file is sent to the appropriate output device with the help of the generic text driver.

The **advantage** of this is that plotting takes place in the background under the Windows Print Manager.

**Figure 41 Configuring the Default Plotter**



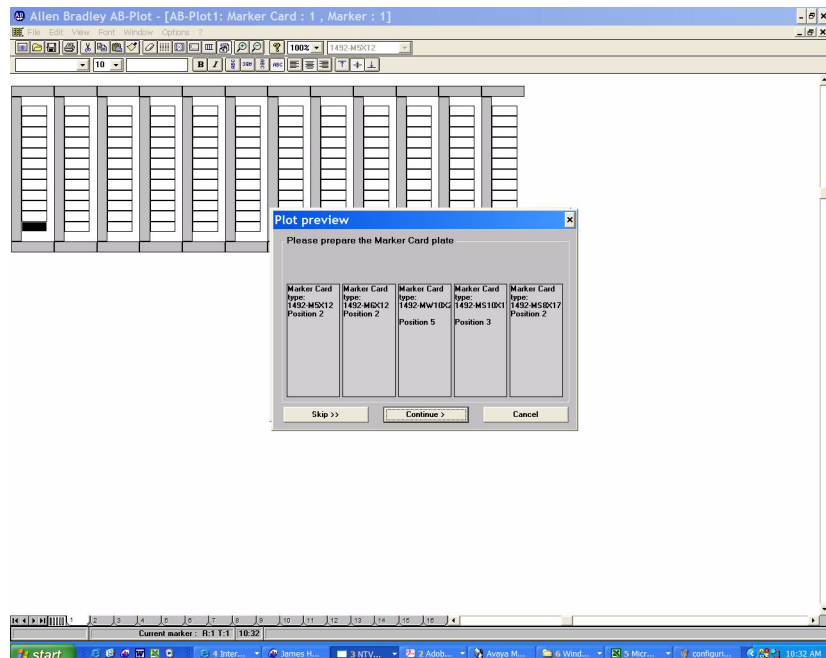
The settings to be used with this type of output can be defined by actuating the "Settings..." button after selecting the **Plot** option in the plot window.

- Alias**                                 The Alias field can be used to give the output device its own individual name.
- Device type**                        Select the plotter type that is being used:
  - 1492-PLTKIT Series C, D
  - 1492-PLTKIT Series E
- Device driver**                     The **Generic/Text only** printer driver. If this is not in the list of drivers available, then it must be installed from the Windows installation disk/CD.
- Communication port**               Select the port to which the output device is connected.
- Reference point**                    Select the plate which was used to set the reference point for the current output device (default Plate 1).
- Pen selection/speed**               Select the plotter pen to be used and a suitable printing speed. Selecting No requires the pen to be manually installed in the plotter arm (select No when using the 1492-PLOTADPT with a Sharpie™ Ultra Fine Point Permanent Marker).
- Marker border**                     This option enables the user to draw a border around each marker. The radius specifies the corner radius. This is useful when calibrating the plotter with a transparency is placed over the marker card. Do not use this function without a transparency in place, as this may damage the pen tip.

You can work with the software after entering these parameters. The settings are saved and only need to be readjusted if the configuration of the device is changed.

Starting the output opens a further window, **Plot preview**. This shows the marker card frame and all the colored spacers required. This window tells you which marker card type is being processed.

Figure 42 The Plot Preview Window



## INFORMATION

### THE RIGHT MOUSE BUTTON

After highlighting a Marker Card area with the mouse (left button), pressing the right button opens a pop-up menu containing the most important functions (Autofill, Cut, Copy, Paste, Multiple paste, Insert copied markers, Delete, Insert cells, Delete cells, Import, Plot) used in the Input Screen. Apart from the functions Import and Plot, all commands apply to the marked area.

### EDITING BLOCKS

**AB-Plot** enables individual markers to be marked conveniently. This is done by positioning the cursor on the first marker of an area to be highlighted, pressing and holding the left mouse button, pulling the cursor to the last marker and then releasing the button. The grouping of markers is now highlighted. Many commands from the **"Edit"** menu and most of the functions of the **icon bars** can be applied to the highlighted area. This allows the user to quickly delete, copy, cut, shift or write (using the Autofill function) on a group of markers.

### SUPPORT AND UPDATES

#### *Information service*

You can access information about software and product updates by visiting our website at:

<http://www.ab.com/industrialcontrols/products>

Our website contains information about products and allows you to download updates and other information.

#### *Telephone hotline for users*

If you have any questions regarding our products, then please contact:

Tel: 440-646-5800

E-mail: [raictechsupport@ra.rockwell.com](mailto:raictechsupport@ra.rockwell.com)

### SYMBOLS

The software includes the ability to plot these special symbols:

**Figure 43 Symbols**



These special characters can be called up via the "**Electrical symbols...**" function in the "**Options**" menu of the Input Screen. A dummy character appears in the input field. Note that resolution of the symbols depends upon font size.

### LIST OF SHORTCUTS AND FUNCTION KEYS

Function	Shortcut, Function Key	Availability
New	Ctrl + N	Program Screen, Marker Card Screen
Open	Ctrl + O	Program Screen, Marker Card Screen
Save	Ctrl + S	Marker Card Screen, Input Screen
Import	Ctrl + I	Input Screen
Export	Ctrl + E	Input Screen

Function	Shortcut, Function Key	Availability
Plot	Ctrl + P	Marker Card Screen, Input Screen
Cut	Ctrl + X	Input Screen
Copy	Ctrl + C	Input Screen
Paste	Ctrl + V	Input Screen
Select all	Ctrl + A	Marker Card Screen
Mark all	Ctrl + A	Input Screen
Clear marker card	Shift + Del	Input Screen
Autofill functions	F8	Input Screen
Multiple lines	Ctrl + <b>ENTER</b>	Input Screen
Help	F1	During the whole application

## DEFINITIONS

<b>Block</b>	More than one highlighted marker.
<b>Clipboard</b>	The clipboard can be used as an intermediate or temporary buffer for cutting, copying or pasting marked Marker Card areas. It can also be used to transfer labelling data to or from another program.
<b>Configure</b>	This is the action of altering the Marker Card dimensions with the help of the Marker Card Configuration window. Configured
<b>Marker Card field</b>	A single click switches this Marker Card back to the selection mode, provided that the Marker Card does not yet contain any information. A double-click opens the Input Screen for editing the Marker Card.
<b>Default format</b>	Standard text format for a selected Marker Card.
<b>Document</b>	This is a labelling project, consisting of up to 16 plates, which is stored in a file under a document name.
<b>Empty Marker Card</b>	A Marker Card field can be switched to the selection mode by a single <b>field</b> click.
<b>Format</b>	The text attributes bold, italic, horizontal and vertical alignment.
<b>Icon buttons</b>	The icon (symbol) buttons are located in the toolbar and the formatting bar.
<b>Import</b>	The loading of files of a format different than that of <b>AB-Plot</b> .
<b>Marker</b>	A marker is a single tag in a Marker Card.
<b>Marker Card in</b>	A single click terminates the selection mode. A double click opens the <b>selection mode</b> Marker Card Format window for configuring the Marker Card.
<b>Multiple lines</b>	Please see "Single and multiple lines"
<b>PLC</b>	Programmable Logic Controller

<b>Pop-up menu</b>	A menu which appears within the application window by actuating the right mouse button.
<b>Project field</b>	This is the outside rim (sprue) of a Marker Card which the individual markers are attached to. Additional information may be written here which helps to allocate the markers in the field afterwards. Note that some markers (1492-MR5X12, MR6X12, MR8X12, etc.) cannot have their project fields plotted upon. Verify that project field is available on the marker card before attempting to print on it. In some cases, more project fields are shown for the software than are on the marker card.
<b>Rapid</b>	Clicking on this field switches all Marker Card fields to the Selection <b>configuration</b> mode and opens the Marker Card Format window.
<b>Scroll bars</b>	The scroll bars are used to move the Marker Card around the screen.
<b>Scroll buttons</b>	The scroll buttons have different functions in the Marker Card and Input Screens. Corresponding explanations can be found in <b>The Input Screen</b> .
<b>Shortcut</b>	Shortcut designates a key combination, mainly consisting of "Ctrl" and a letter. These enable the user to execute program commands quickly with the help of the keyboard (see section <b>5.5 List of shortcuts and function keys</b> ).
<b>Single and multiple lines</b>	Multiple line mode is set as default. If the single line mode has been selected, then the text which appears on the marker includes no line returns. In the multiple line mode, a line return is generated by pressing Ctrl + <b>ENTER</b> . <b>Note:</b> A text in multiple line mode can be converted to single line mode but the returns are lost in doing so.
<b>Status bar</b>	The status bar is located at the bottom edge of the screen. It shows program information during the application. For instance, you can have the functions of the icon buttons displayed without having to execute the command. To do this, click on an icon button and hold down the left mouse button. The function of that button is now displayed in the status bar. Pulling the mouse pointer clear of the button before releasing the left mouse button will ensure that the function is not executed.
<b>Toolbar</b>	Symbol (icon) bar: a collection of icon buttons located along the top of the screen.

### THE GRAPHAB.GDM CONFIGURATION FILE

All the Marker Card dimensions and supplementary information relevant to the program are stored in the configuration file GRAPHAB.GDM. This file is in ASCII form and can be edited with any word processing program. As some dimensions cannot be adjusted with the Configuration Editor, you have the option of modifying the Marker Card configuration file

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#### Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

GRAPHAB.GDM directly in the **AB-Plot** installation directory.

**Warning!** Always make a back-up copy of the GRAPHAB.GDM file first before making any changes. Even the most insignificant of modifications can render all existing configurations useless. All dimensions in the file must be divisible by 25.

```
NONE;0;0;0;0;0;0;0;0;0;16777215;000 000;0;0;Reset
1492-M3X5;5000;15480;3300;200;76000;10;18700;5300;240000;10;1674
4192;175 527;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M3X12;5000;15100;3500;35;76000;10;14775;12000;249000;12;167
44192;177827;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M5X10;5000;2350;4900;200;76000;12;14800;9800;249000;12;1674
4192;163 500;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M5X12;5000;2300;4850;250;76000;12;14750;12000;249000;12;167
44192;160 986;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M5X5;5000;7375;5075;0;76000;10;6865;4900;240000;20;16744192;
160 980;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M5X8;5000;2100;4850;270;76000;12;14775;7775;249000;12;16744
192;164 074;500;3;J-series, L-series;150;50;10;0;0;0;0;0
1492-M5X15;5000;2250;4900;225;76000;12;24750;15000;249000;8;1674
4192;1768090;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M6X5;5000;2600;5895;150;76000;10;6875;5150;249000;20;167441
92;160 982;600;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M6X10;5000;2300;5850;275;76000;10;14800;10000;249000;12;167
44192;160 990;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M6X12;5000;2300;5850;275;76000;10;14800;12000;249000;12;167
44192;160 990;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-M7X12;5000;4100;6150;250;76000;9;14780;12200;249000;12;1674
4192;160 992;500;3;J-series, L-series;70;80;10;0;0;0;0;0
1492-MC5X8;5000;7175;4950;175;76000;10;15000;8200;249000;12;1677
7215;167 714;500;3;WAGO, Phoenix, Entrelec, Telemecanique,
Wieland, Sprecher+Schuh;70;80;10;0;0;0;0;0
```

Data structure:

The following table explains the individual columns of the file. These columns are separated by a semicolon (;). Every line must be terminated with a semicolon.

Dim.	Description	Fig.
1492-M5X10	Article designation of Marker Card	
5000	Width of project field and Marker Card frame ( $\mu\text{m}$ )	dim. 1
2350	Distance between Marker Card frame and first marker ( $\mu\text{m}$ )	dim. 2
4900	Width of marker ( $\mu\text{m}$ )	dim. 3
200	Distance between two markers ( $\mu\text{m}$ )	dim. 4
76000	Total width of Marker Card ( $\mu\text{m}$ )	dim. 5
12	No. of markers per row	
14800	Distance between two project fields ( $\mu\text{m}$ )	dim. 6

Dim.	Description	Fig.
9800	Length of marker ( $\mu\text{m}$ )	dim. 7
249000	Total length of Marker Card ( $\mu\text{m}$ )	dim. 8
12	No. of rows per Marker Card	
16744192	Decimal value of a color. This is identical with the color of the underlay which is to be used when plotting. This decimal value is calculated from the color proportions of the primary colours (red/green/blue).	
163 500	Article code for marker type	
500	Y-offset from reference point. Height difference to set reference point. A negative value shifts the reference point upwards, a positive value shifts it downwards.	
3	Marker type: 1 = Wire marker 2 = Device marker 3 = Terminal marker	
...	Remarks (e.g. plug-in marker for transparent sleeve)	
	Align project fields in X-direction	
	Align project fields in Y-direction	
	Specify font size for project fields (in points)	
	Specify font size for markers (in points)	
	Specify text orientation for Marker Card labelling (0 = 0°, 900 = 90°, 1800 = 180°, 2700 = 270°)	

### THE ABPRINT.INI INITIALIZATION FILE

The initialization file contains information which is necessary for the correct running of the program. Most of the parameters are automatically updated by the settings in AB-Print.

The following parameters can be only adjusted in the initialization file. To do this, open the file with the help of a text editor (e.g. MS Notepad, notepad.exe).

When you open, save, print, etc., data from various directories is used. You can adjust the path details by means of the following parameters:

[PATH]	Path details of files required
HELP=C:\ABPRINT\	Path of AB-Print help file
SPOOLER=C:\ABPRINT\	Path for temporary file store
SFT=C:\ABPRINT\ASCII.SFT	Path of ANSI/ASCII allocation file
SYMBOLS=C:\ABPRINT\ETSIGN.SYM	Path of electrical symbols file
GRAPHGDI=C:\ABPRINT\GRAPH.GDI	Path of initialization file



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[PATH]	Path details of files required
GRAPHGDM=C:\ABPRINT\GRAPHAB.GDM	Path of Marker Card configuration file
SAVEDIR=C:\ABPRINT\DATA\	Standard directory for Save as...
OPENDIR=C:\ABPRINT\DATA\	Standard directory for Open...
IMPORTDIR=C:\ABPRINT\DATA\	Standard directory for Import...
EXPORTDIR=C:\ABPRINT\DATA\	Standard directory for Export...

It is possible to modify the pre set separating character for file import from text files under the Terminator heading.

[TERMINATOR] Separating character for file import

DATA=, Terminator for marker data

PROJECT=; Terminator for project fields

The Standard file type (e.g. \*.txt) can be adjusted under the Import heading.

[IMPORT]. DEFAULTTEXT=txt File type

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**Power, Control and Information Solutions Headquarters**

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846