

## Welcome

**MicroChart/32** for Windows 95™ and Windows NT™ 4.0 was originally developed as a DOS graphics program in 1983 during my teaching assignment at University of Hawaii and from the very beginning till present has been used to design and chart the halftime shows of the University of Hawaii "Rainbow" Marching Band and the Hula Bowl All-Star Halftime Pageantry. Since most other early marching band drill design programs were for the Apple™ (then IIe) computers, MicroChart was one of the first program of it's kind for the DOS IBM PC platform. A Windows™ version was released in 1991 which included several major enhancements that took advantage of the new graphical environment. Now in it's third major revision for the new 32-bit Windows 95 and Windows NT, MicroChart/32 supports the newer functions, controls, and interface improvements of these environments.

Some of the features of MicroChart/32 include:

- Drawing Tools: point, line, block, parallelogram, arc, circle, freeform curves
- Edit Functions: copy, delete, move, scale, rotate, mirror, join, center, alter symbol & color, and zoom
- Multiple zoom magnifications for precision placement of objects
- True perspective view for press or visitors with adjustable height & distance settings
- Selectable colors for positions and grid
- Multiple document support - load and work with several drills at a time
- Floatable tool bar and edit bar
- Support for high school, NCAA, and professional league hash and yardline markings
- Batch printing of chart files
- Batch Builder dialog for creating batch print files
- Support for most Windows compatible printer including laser and color inkjets
- Selectable printer fonts and font attributes
- Online help via Windows™ compatible help file
- Support for the Windows 95 / Windows NT registry

Thank you for using **MicroChart/32!**

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MicroChart/32 was developed and tested on Windows NT Workstation 4.0 and Windows 95 with Microsoft Visual C++ 5.0 on a Cyrix 6x86-P166 system with 64 MB RAM, 2.2 GB hard disk, Matrox Millennium PCI accelerated video running at 1024x768x64K and large fonts.

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See Also:    [Registration Information](#)  
              [Registration Form](#)  
              [Legal Information](#)  
              [Credit Card payment](#)  
              [German Registration Service](#)

## Registering MicroChart/32

**MicroChart/32** is Shareware and may be freely distributed. You may use and evaluate MicroChart/32 for a 15 day free trial period. The software will, however, continue to function after 15 days. If you decide to register your copy of MicroChart/32, you will get:

1. A serial number that will provide full printing features and disable the registration reminders. This registration number will be valid for all future minor updates of MicroChart/32.
2. Free upgrades. Simply download the new shareware version from CompuServe or selected Internet depositories and use your registration number to convert it to a registered version. Your name and organization will appear in the about box after you enter your registration number.
3. Notification by e-mail (if provided) when future versions of MicroChart/32 become available.
4. Free support for MicroChart/32 directly from the author via e-mail.

### **PAYMENT:**

1. Credit Card payment (VISA, MasterCard, American Express).
2. If you have a CompuServe account, you can use the convenient on-line software registration service. This service will charge your account the \$99 fee for a single-user license and will automatically send an e-mail message notifying me that you have registered. To use this service type GO SWREG, select Register Shareware, and use ID #**10067** to register MicroChart/32. I will respond by e-mail with your MicroChart/32 serial number. There is no additional charge for using the SWREG service.
3. If you would prefer to register by surface mail, please print the Single License Order Form and send the completed form with the \$99 single-user license fee to:

H&H Enterprises  
45-1133 Makamae Street  
Kaneohe, Hawaii 96744-3122  
U.S.A.

If you include your e-mail address with your payment, I will send you your MicroChart/32 serial number by e-mail. Otherwise, I will send it by surface mail.

Note that you will not receive a diskette or a manual in the mail when you register, since you already have the complete MicroChart/32 program, including the available documentation (this help file). This allows me to not charge anything for upgrades, since you can download them at your convenience.

This registration number will be valid for all future minor updates of MicroChart/32. To upgrade, simply download the new shareware version and use the registration number to convert it to a registered version.

Thank you for using MicroChart/32!

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See Also:    Registration Form  
              Shareware  
              Credit Card payment  
              German Registration Service

## Registration Form

### MicroChart/32 version 7.02

To print this form, click on the Print button above, or press <Alt> + <P>. If you are unable to print this form, then you can send the information requested below, with payment, to the address given.

NAME : \_\_\_\_\_

ORGANIZATION : \_\_\_\_\_

ADDRESS : \_\_\_\_\_

CITY, STATE : \_\_\_\_\_

POSTAL/ZIP CODE : \_\_\_\_\_

COUNTRY : \_\_\_\_\_

TELEPHONE (Voice) : \_\_\_\_\_ (FAX) : \_\_\_\_\_

E-MAIL : \_\_\_\_\_

COMMENTS : \_\_\_\_\_

\_\_\_\_\_

WHERE DID YOU OBTAIN YOUR COPY OF MICROCHART/32?

CD-ROM: \_\_\_\_\_

CompuServe Forum: \_\_\_\_\_

BBS: \_\_\_\_\_

Internet: \_\_\_\_\_

Other: \_\_\_\_\_

QUANTITY: \_\_\_\_\_ X \$99.00 \_\_\_\_\_

TOTAL ENCLOSED (US Dollars): \_\_\_\_\_

Payments must be in US dollars drawn on a US bank, or you can send international postal money orders in US dollars.

Make checks payable to: **H&H Enterprises**

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45-1133 Makamae Street  
Kaneohe, Hawaii 96744-3122  
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*Thank you for purchasing MicroChart/32!*

## System Requirements

### MINIMUM

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CPU: 80386  
Memory: 4 MB  
Video: VGA 640x480  
Windows: Windows 95 or Windows NT 4.0  
Disk: Approximately 700 KB

### PREFERRED

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CPU: 80486 or Pentium  
Memory: 8 MB or more (depending on Windows version)  
Video: SVGA 1024x768  
Windows: Windows 95 or Windows NT 4.0  
Disk: Approximately 700 KB

## Charting Tools

Tape Measure	F3
Point	F4
✓ Line	F5
Block	F6
Hollow Block	Shift+F6
Parallelogram	Alt+F6
Hollow Parallelogram	Alt+Shift+F6
Arc	F7
Circle by Radius	F8
Circle by Step	Alt+F8
Bezier-Simple	F9
Bezier-Complex	Alt+F9

MicroChart/32 includes a powerful array of tools to meet your most demanding charting requirements. To set the active charting tool, open the Tools menu and click on your selection or click on the desired tool button on the Tool toolbar.

The active tool will have a check mark next to it in the Tools menu and is always displayed in the Tool Box on the Status Bar. Each tool requires from one to three input points to define the object being drawn, and uses from one to seven control points with which the overall shape and position of the object can be adjusted.

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See Also:    [Adding Objects](#)  
              [Edit Tools](#)

## Edit Tools

Redefine Object	
C <u>o</u> py	Ctrl+C
D <u>e</u> lete	Ctrl+D
J <u>o</u> in	Ctrl+J
M <u>o</u> ve	Ctrl+F
C <u>e</u> nter	Ctrl+T
R <u>o</u> tate	Ctrl+R
S <u>c</u> ale	Ctrl+L
A <u>l</u> ter Shape	Ctrl+A

The edit tools allow you to make all necessary adjustments to your chart before printing. Much like words and paragraphs of a word processor, the positions and objects of MicroChart/32 can be cut, moved, copied, centered, etc. with control over various aspects of its appearance. To choose an edit tool, open the Edit menu and click on your selection.

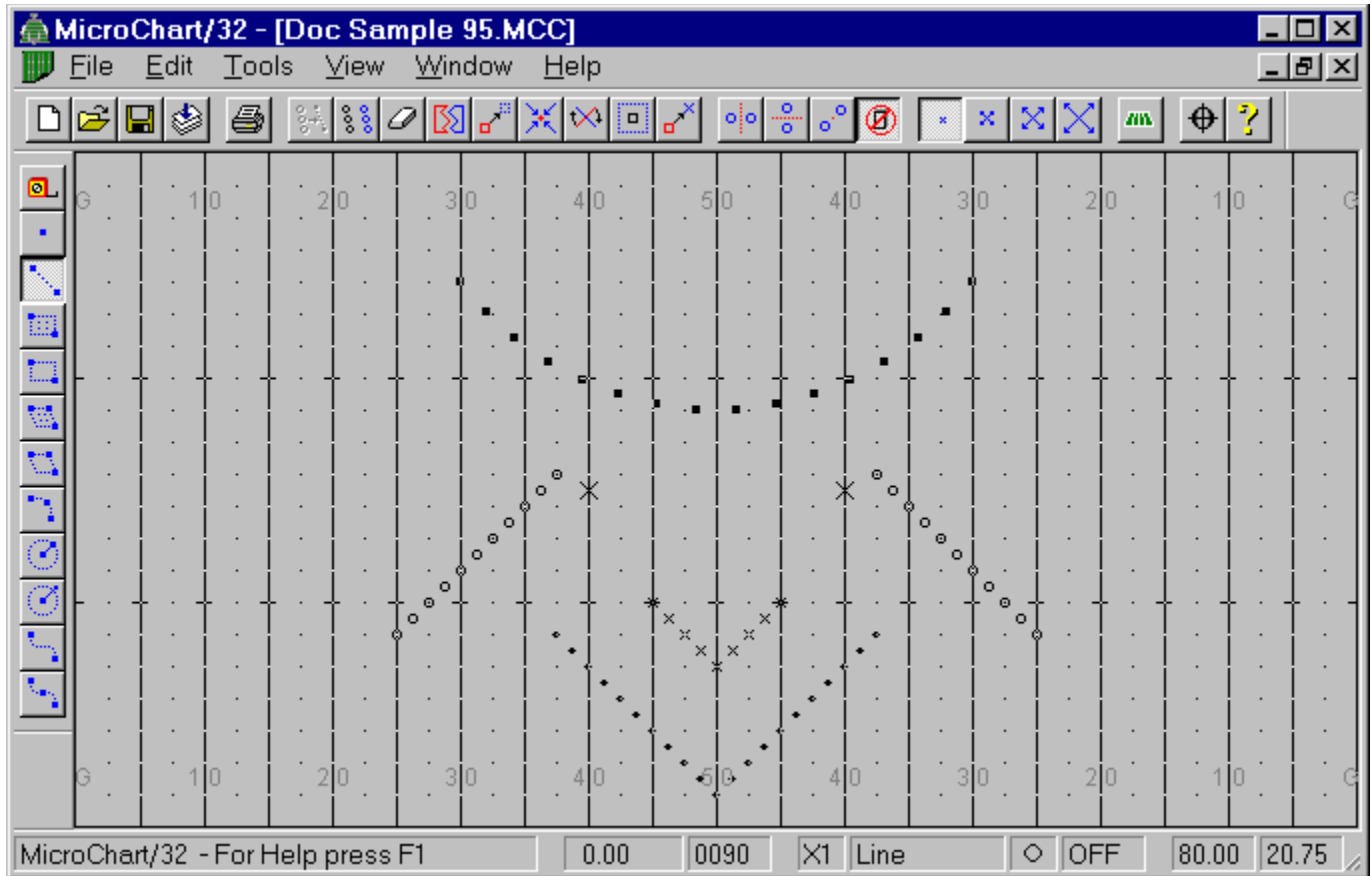
Each edit tool (except Redefine and Copy) presents one or more dialog box requesting some information specific to the edit function. It is usually followed by another request for input either by pointing to an object or by enclosing positions in an area within which the tool is to modify. An edit tool cannot be selected if there are no positions on the active chart.

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See Also: [Charting Tools](#)



## Screen Layout



The MicroChart/32 screen is a simple and clean workspace that allows for maximum viewing and editing of chart objects. In addition to the standard title bar and menu bar common to most Windows applications, most information is displayed on the status bar at the bottom of the screen. The status bar is divided into smaller boxes that display information in the following order from left to right:

<b>Status Bar</b>	Displays various information including object length, ruler length, object information, input instructions, and menu item descriptions.
<b>Distance Box</b>	Displays the distance in steps (22.5 inches) of the current line or curve. Also used by the <u>Tape Measure Tool</u> to find the length in steps between two points.
<b>Tool Box</b>	Displays the current charting tool. Clicking on this box will cycle either forward (left mouse button) or backwards (right mouse button) through the available tools.
<b>Symbol Box</b>	Displays the current screen symbol and color. Clicking on this box will cycle either forward (left mouse button) or backwards (right mouse button) through the available symbols.
<b>Mirror Box</b>	Displays the current mirror mode. Clicking on this box will cycle either forward (left mouse button) or backwards (right mouse button) through the available modes (off, horizontal, vertical, and center).
<b>Count Box</b>	Displays the total position count for the current chart.
<b>Horizontal Step</b>	Displays the step distance of the current cursor position relative to the 50 yardline.

### **Vertical Step**

Displays the step distance of the current cursor position relative to the grid origin.

## Screen Resolution

One of MicroChart/32's many strengths is the accurate control and placement of objects on the charting grid. This is mainly due to the careful use of the current screen resolution to the best advantage. By using a proportionate amount of screen pixels to represent grid measurements, MicroChart/32 allows the placement of objects to the fraction of a step. This accuracy, though, can be further enhanced by using the greatest screen resolution possible on the system.

Although standard VGA resolution (640 x 480) is adequate for most charting applications, it is highly recommended that the Super VGA resolution (800 x 600 or higher) be used.

## Batch Print

To start the batch print feature, do one of the following:

- From the File menu, choose Batch Print (Alt+F, B)
- Type Ctrl+B

If you have made any changes to the current chart since you last saved, MicroChart/32 asks whether or not you want to save these changes. All existing positions are cleared and the chart will be unnamed.

The Open Batch Print File dialog box will prompt for the batch file name and location. Select the disk drive and directory of the batch file. Type the name of the batch file in the File Name box. Press the Open button or simply scroll through the files and double click on the batch file.


The Print dialog box will then prompt for print configuration selections. Press the Print button to begin or the Cancel button to abandon batch printing. During batch printing, another dialog box indicating the file, print device, and port will be displayed. You may cancel printing the current chart by pressing the Abort button.

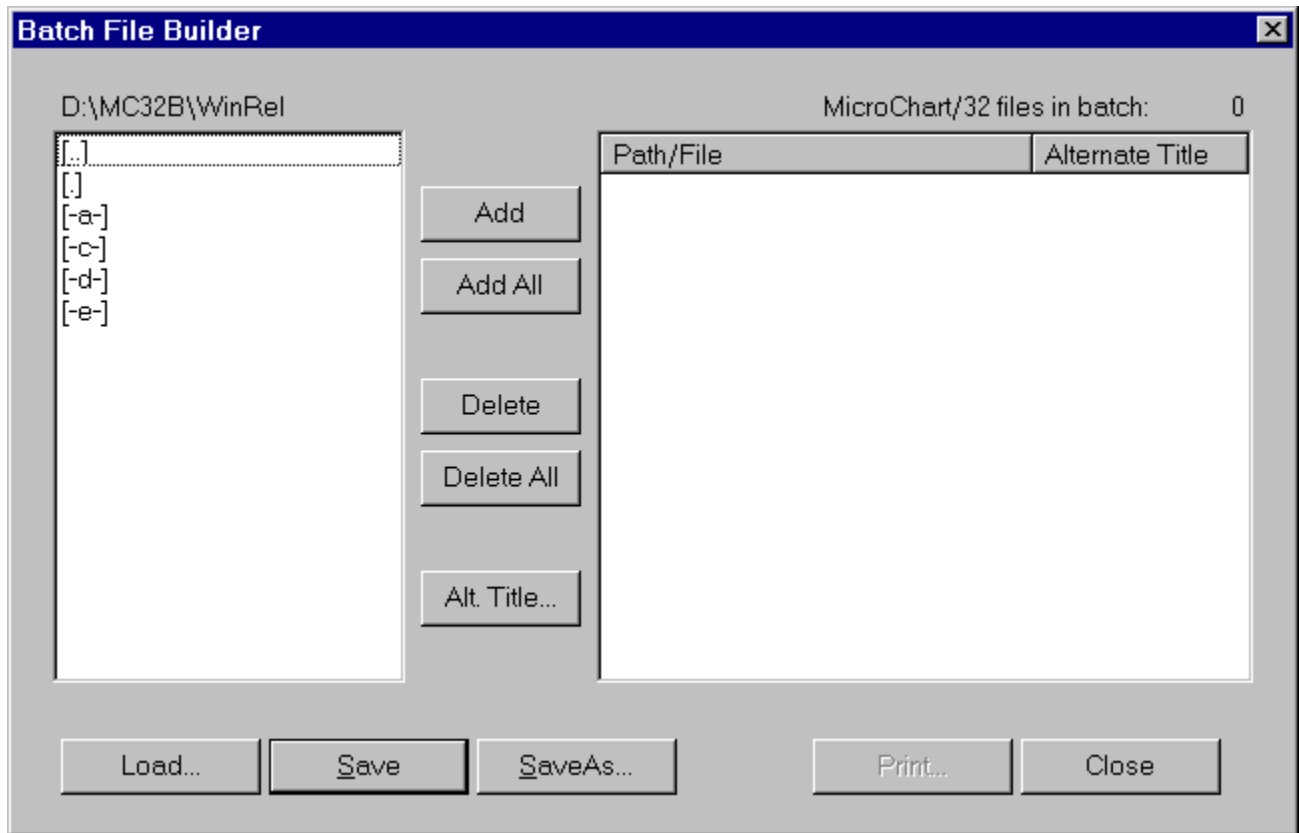
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See Also:    [Creating Batch Print Files](#)  
              [Printing](#)  
              [Print Options](#)  
              [Printer Fonts](#)

## Creating Batch Print Files

To create a batch print file, do one of the following:

- Select the  icon on the Edit toolbar
- From the **File** menu, choose **Batch File Builder...** (Alt+F, T)
- Select from the main menu: File / Batch File Builder...



A batch print file includes the names and (optionally) chart titles to be printed as a batch print job. Using the Batch Builder dialog, select the directory where your charts are saved in with the listbox on the left half of the dialog. Select charts individually by double clicking on the filenames or by highlighting the filename and pressing the Add button. Press the Add All button to select all chart files in the current directory.

To print a title other than the one saved with the chart, select the file in the listbox on the right half of the dialog and press the **Alt. Title...** button, or you can simply click the file with the right mouse button and type the alternate title.

### Creating Batch Files Manually

Batch print files can be created manually by any pure ASCII text editor such as Windows Notepad. The format of the file is flexible but must adhere to the following specifications:

1. Each line in the file must contain a valid chart file path and name with extension. MicroChart/32 does not check for illegal file name or path specifications. The case of the file names do not matter (a:\big opener.mcc = A:\BIG Opener.MCC).

2. MicroChart/32 uses the default title stored in the Summary Information with the chart. If a title is included in the batch file, it will override the default title. The title must be preceded by a TAB (ASCII 9) to separate it from the file name. Note that in some editors spaces (ASCII 32) are inserted to represent tabs. This is NOT acceptable and will result in truncated or absent titles. The case of the characters in the chart title is important. Titles will be printed exactly as it appears in the batch file.
3. The batch file must be saved with the extension .MCB and can be located anywhere on any disk as long as the file names in the batch file include the full path to their location. The Batch Print File Open dialog box will search and list files with only this extension.
4. If an error should occur during printing, edit your batch file to include only those files that you want printed or reprinted.
5. Comments are allowed in the batch file as long as the first character of each comment line is a semicolon. Blank lines can be inserted to separate groups of files.
6. The following is a sample MicroChart/32 batch print file:

```
; SAMPLE MICROCHART/32 BATCH FILE

; Opener charts with alternate titles:
C:\MyCharts\Opener_1.MCC      Opening Move
C:\MyCharts\Opener_2.MCC      Multigait Drill
C:\MyCharts\Opener_3.MCC      Bursting Arcs
C:\MyCharts\Opener_4.MCC      Final Set

; The default titles will be printed for these charts:
D:\MyCharts\DrumlineFeature_1.MCC
D:\MyCharts\DrumlineFeature_2.MCC
D:\MyCharts\DrumlineFeature_3.MCC
D:\MyCharts\DrumlineFeature_4.MCC
```

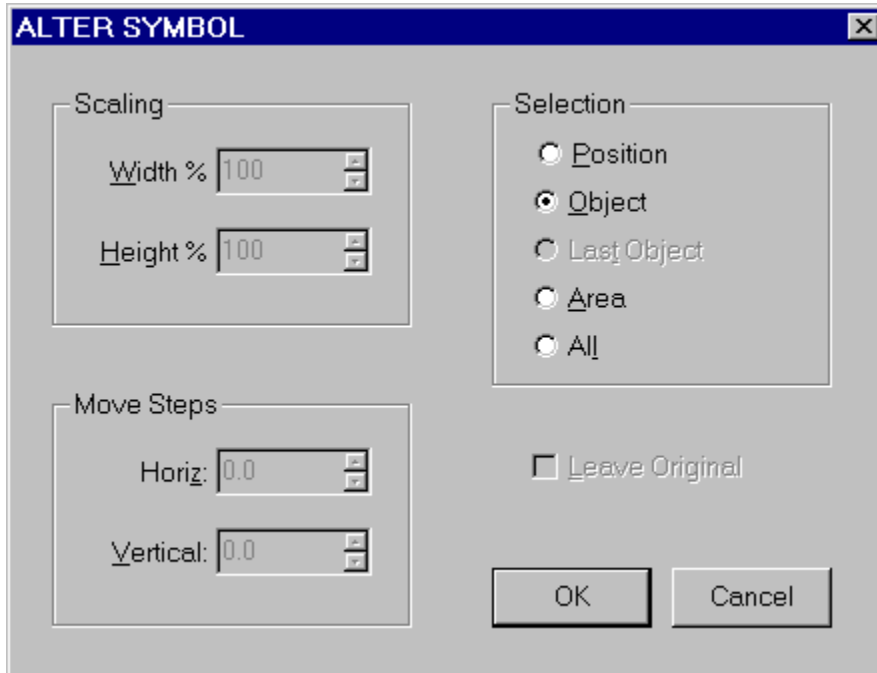
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See Also:    [Batch Print](#)  
              [Printing](#)  
              [Print Options](#)

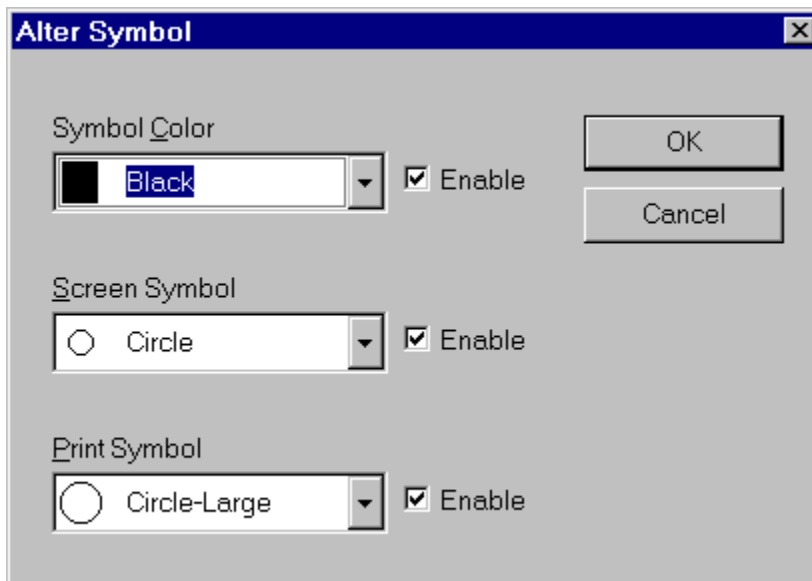
## Alter Objects

To start the Alter feature do one of the following:

- From the **Edit** menu, choose **Alter** (Alt+E, A)
- Press Ctrl+A



The Select Method dialog box will prompt you to identify the method of selection you desire. Your choices include object, area, or all positions. If the object or area methods are selected, the cursor will change to a hollow crosshair and you will be prompted to either click on an object, or to surround an area by dragging a rectangle around the positions you want altered.



The Alter Symbol dialog box will then appear and prompt for symbol color, screen symbol, and print

symbol. The Enable checkboxes next to each listbox allows you to selectively enable or disable the various attributes of the selected positions. For example, by enabling only the Screen Symbol listbox, one could change the screen symbol used of all the selected positions, but not the print symbol or the symbol color.

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See Also: [Setting the Current Symbol Shape and Color](#)  
[Display Object Information](#)



## Adding Objects

The input method is consistent throughout all charting tools and involves three stages: entering control points, adjusting the final position of the object, and defining the object's positions. These stages are described below:

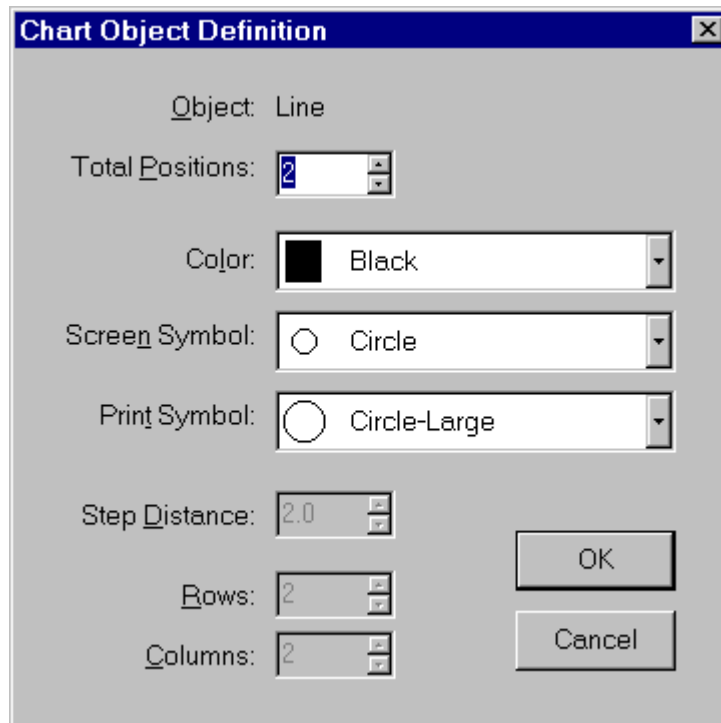
**STAGE I** All necessary control points are created for defining the object. These controls define the key points of the object such as endpoints, corners, and centers. To enter control points, move the cursor with the mouse or the keyboard arrow keys to the desired location. Then click on the left mouse button or press the ENTER key.

**STAGE II** Control points are adjusted to size and shape the object before actual positions are plotted. As adjustments are made, dotted lines serve as visual feedback to display the size and shape of the object to be plotted.

The controls perform different functions or react differently to adjustments depending on their appearance. The large solid square control drags the entire object to a new location. The large hollow square control in the Parallelogram tool indicates the second input point and the term row for this object defines the length between the 1st and the 2nd input points. The small solid square controls modify the object locally.

This stage is completed by clicking the RIGHT mouse button or by holding down the SHIFT key while pressing the ENTER key. The tool can also be aborted at this point by pressing the Ctrl key while clicking the RIGHT mouse button, or simply by pressing the ESC key.

**STAGE III** The Chart Object Definition dialog box is filled in to define specific information for the object including the number of positions, screen symbol, print symbol, and color. After all information is entered the object is plotted on the grid using the selected screen symbol and color. If the object is not exactly what was intended you may select Redefine Object under the Edit menu to re-edit the control points and change object data.

The image shows a Windows-style dialog box titled "Chart Object Definition". It has a blue title bar with a close button (X) in the top right corner. The dialog box has a light gray background. It contains several input fields and buttons. At the top, it says "Object: Line". Below that is "Total Positions:" with a spin box set to "2". Then "Color:" with a black color swatch and a dropdown menu showing "Black". Next is "Screen Symbol:" with a circle icon and a dropdown menu showing "Circle". Then "Print Symbol:" with a larger circle icon and a dropdown menu showing "Circle-Large". Below these is "Step Distance:" with a spin box set to "2.0". At the bottom left are "Rows:" and "Columns:" spin boxes, both set to "2". On the bottom right are "OK" and "Cancel" buttons.

*Chart Object Definition dialog box.*

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


See Also: [Input Table](#)  
[Charting Tools](#)  
[Edit Tools](#)

## Input Table




Object	Input Points	Control Points	Input Order
Point	1	1	Point
Line	2	2	Endpoint 1, Endpoint 2
Block	2	2	Corner, Opposite Corner
Hollow Block	2	2	Corner, Opposite Corner
Parallelogram	3	3	Corner 1, Corner 2, Corner 3
Hollow Parallelogram	3	3	Corner 1, Corner 2, Corner 3
Arc	3	3	Endpoint 1, Endpoint 2, Arc Intersect Point
Circle by Radius	2	2	Center Point, Circle Intersect Point
Circle by Step	2	2	Center Point, Vector Point for 1st Position
Bezier Curve - Simple	2	4	Endpoint 1, Endpoint 2
Bezier Curve - Complex	2	7	Endpoint 1, Endpoint 2

## Mirror Modes

Designing symmetrical drills with MicroChart is easily accomplished using one of the three mirroring modes: horizontal, vertical and center. These modes take effect when objects are plotted on the grid. As each position is plotted, another position is plotted with respect to the current mirror mode. The following describes the available mirror modes:


-  **OFF** Mirroring is not active.
-  **HOR** Mirror the left and right sides of the field with respect to the 50 yardline.
-  **VER** Mirror the top and bottom halves of the field with respect to the imaginary line that divides the grid vertically in half.
-  **CTR** Mirror to the point at the center of the grid.

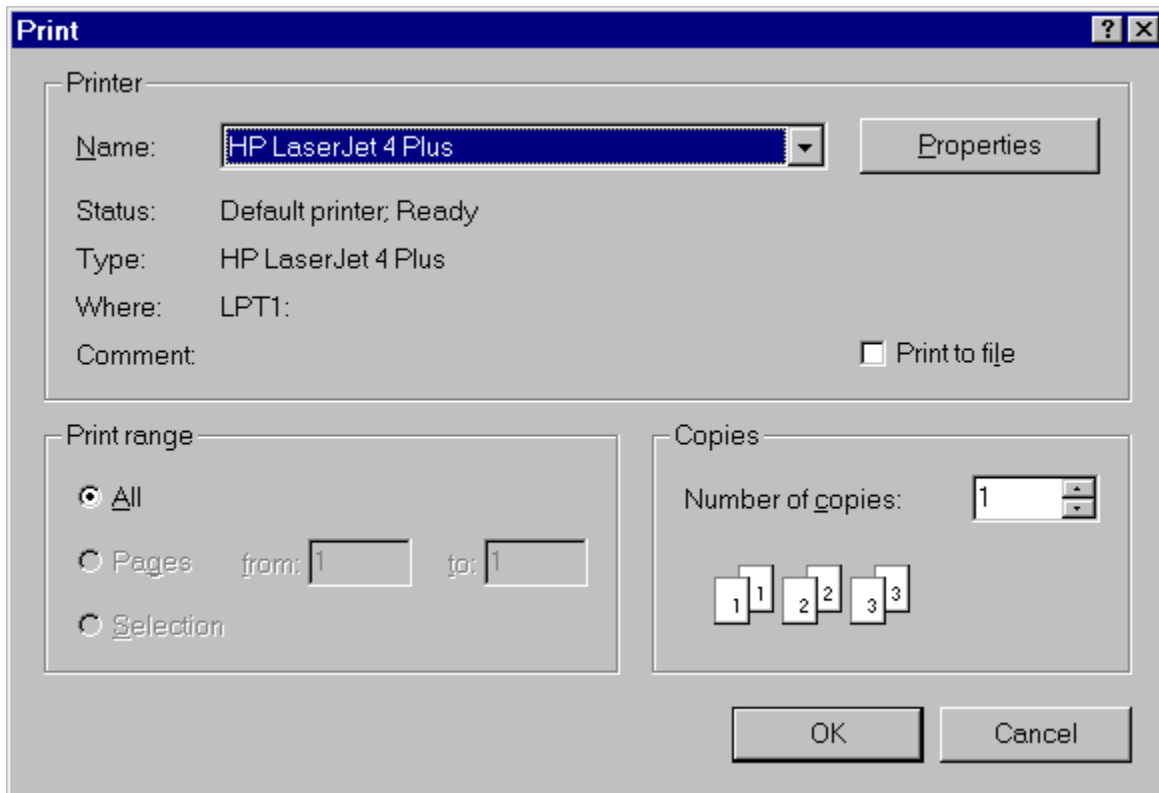
The active mirror mode can be changed by cycling through and selecting the mode of your choice using one of the following actions:

-  Press on the desired mirror button on the Edit toolbar.
-  Click on the Mirror BoxScreenLayout on the Status Bar with the left mouse button to cycle forward or the right mouse button to cycle backward through the mirror modes.
-  Press "M" to cycle forward through the mirror modes.

## Printing

To open the Print dialog box, do one of the following:

- Press the  button on the Edit toolbar
- From the **File** menu, choose **Print** (Alt+F, P)
- Press Ctrl+P



The standard Windows Print dialog box will be presented. Make any necessary adjustments, such as paper orientation and number of copies, and press the OK button.

During printing, another dialog box indicating the file, print device, and port will be displayed. You may cancel the print job by pressing the Abort button.

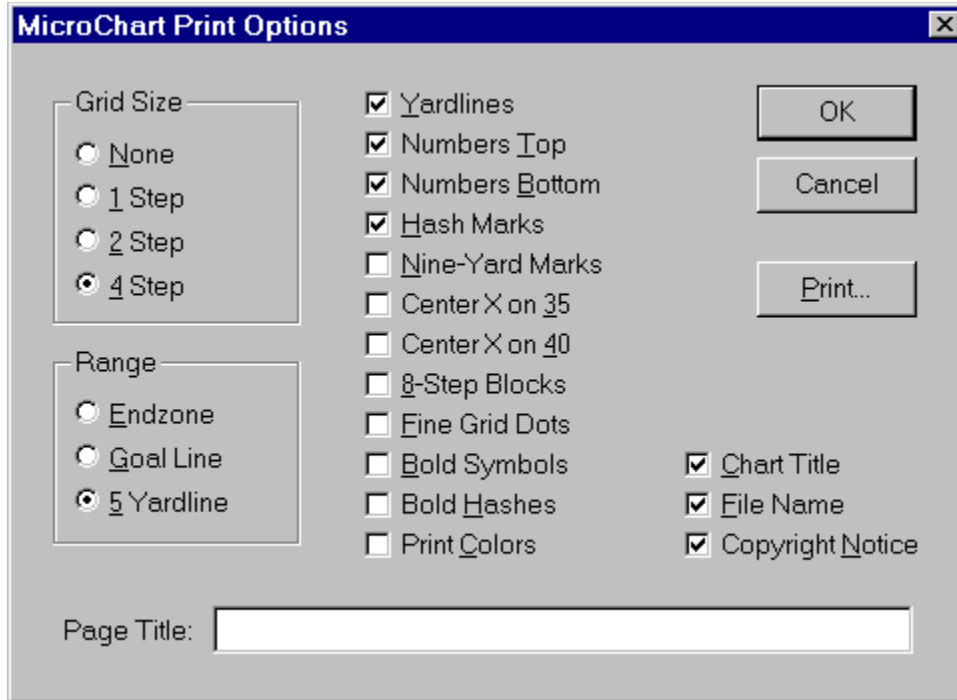
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See Also: [Print Options](#)  
[Batch Print](#)  
[Creating Batch Print Files](#)

## Print Options

To open the Print Options dialog box, do one of the following:

- From the **File** menu, choose **Print Options** (Alt+F, O)



The image shows the 'MicroChart Print Options' dialog box. It has a title bar with a close button. The dialog is divided into several sections. On the left, there are two groups of radio buttons: 'Grid Size' with options 'None', '1 Step', '2 Step', and '4 Step' (selected); and 'Range' with options 'Endzone', 'Goal Line', and '5 Yardline' (selected). To the right of these are several checked and unchecked checkboxes: 'Yardlines' (checked), 'Numbers Top' (checked), 'Numbers Bottom' (checked), 'Hash Marks' (checked), 'Nine-Yard Marks' (unchecked), 'Center X on 35' (unchecked), 'Center X on 40' (unchecked), '8-Step Blocks' (unchecked), 'Fine Grid Dots' (unchecked), 'Bold Symbols' (unchecked), 'Bold Hashes' (unchecked), 'Print Colors' (unchecked), 'Chart Title' (checked), 'File Name' (checked), and 'Copyright Notice' (checked). At the bottom left is a 'Page Title:' label followed by a text input field. On the right side, there are three buttons: 'OK', 'Cancel', and 'Print...'.

The selections in the Print Options dialog box are described below:

<b>Printer</b>	Lists the installed printer devices of your current Windows setup. Select the device you want to print your charts on.
<b>Printer Setup</b>	Configure your printer options including page size, source, orientation, and print resolution. The printer setup varies with individual printer drivers. For best results select landscape orientation with the highest resolution possible for your printer.
<b>Grid Size</b>	Select the preferred step size of the dotted grid. Select None if a grid is not desired.
<b>Range</b>	Select the outer range of the printed chart. For best results select the narrowest grid that is necessary to include all your chart positions.
<b>Yardlines</b>	Print yardlines.
<b>Yardline Numbers</b>	Print yardline numbers.
<b>Hash Marks</b>	Print hash marks.
<b>Nine-Yard Marks</b>	Print NCAA nine-yard markings.
<b>Center X on 35</b>	Print center X on both 35 yardlines.
<b>Center X on 40</b>	Print center X on both 40 yardlines.
<b>Fine Grid Dots</b>	Use a fine dot size to print the grid. For best results, experiment which each mode to determine the best output for your printer.
<b>Bold Symbols</b>	Print bold symbols. For best results, experiment which each mode to determine the best output for your printer.

**Print Colors**

Print using colors. For best results, this option should be OFF for monochrome printers which would otherwise attempt to print colors as shades of gray. In this situation white and light colored symbols would not be clearly visible.

Enter the following information to be printed on the chart:

**Page Title**

A title containing any alpha-numeric and punctuation characters. MicroChart/32 inserts the default title as entered in the Summary Information which may be overridden by typing another title.

**Copies**

The number of copies to print.

Press the Print button to print the chart or the Cancel button to abandon the print job. Press the Save Options button to save your print configuration to be loaded as the default the next time you start MicroChart/32.

During printing, another dialog box indicating the file, print device, and port will be displayed. You may cancel printing the current chart by pressing the Abort button.

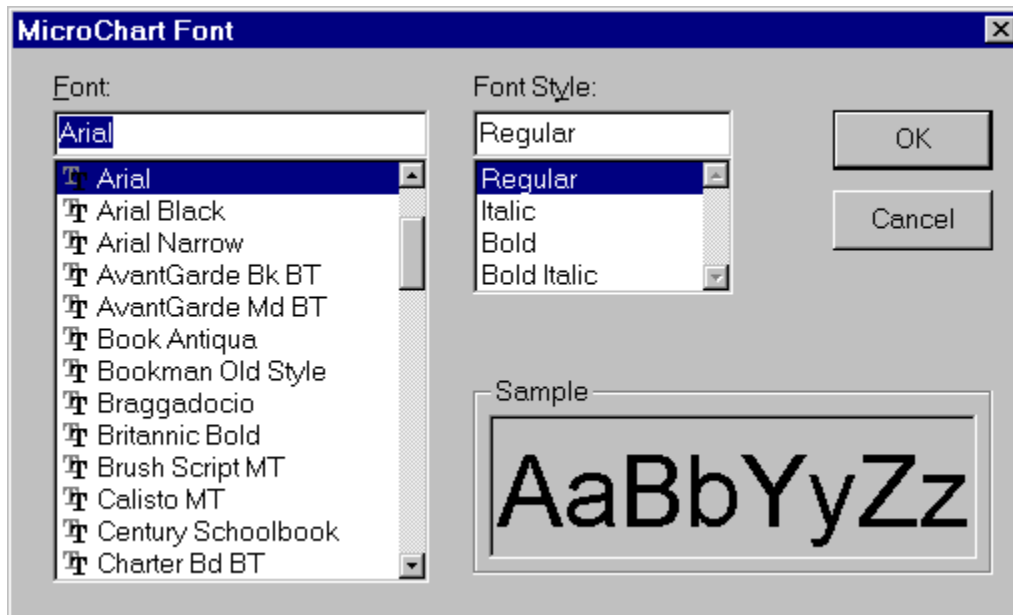
---

See Also: [Printing](#)  
[Batch Print](#)

## Printer Fonts

To select or change the current font:

1. Open the **File** menu and select **Printer Fonts** (Alt+F, F).
2. Scroll through and highlight your selections in the Font and Font Style boxes.
3. Confirm your selection by checking the Sample box.
4. To accept your selection or change click the OK button.
5. To abandon your selection or change click the Cancel button.



MicroChart/32 can use any printer font installed for your Windows configuration. The selected font will be used to print the chart title, yardline numbers, file name, and copyright notice. The default font that is used is the standard Windows Arial font. Depending on your preference though, you may select an alternate font and style that best serves your charting needs.

---

See Also: [Printing](#)  
[Print Options](#)  
[Batch Print](#)



## Redefine Object

The Redefine Object feature is a time saving tool for making minor adjustments on objects such as a change in the number of positions, or maybe tweaking the curvature of an arc or bezier.

Redefine Object allows only the most recently drawn object to be retraced back into Input Stage II to allow the readjustment of control points and handles. All positions in the object are deleted and the control points are redrawn in their last position before the Chart Object dialog box was called. Once again, this stage is completed by clicking the Right mouse button or by holding down the Shift key while pressing the Enter key. The previous information such as object positions, rows, columns, etc. will be pre-entered wherever appropriate. Change or leave whatever information as necessary then press the OK button. The object will be redrawn reflecting your changes.


**NOTE:** If the tool is aborted (by pressing the Ctrl key while clicking the Right mouse button, or by pressing the Esc key), or if the Chart Object dialog box is aborted (by pressing the Cancel button), all information for the last object is discarded, disabling any further redefinition.

---

See Also:     [Adding Objects](#)  
                 [Input Table](#)

## Copy Object

The Copy tool makes duplication of objects quick, easy and flexible. To start the Copy feature do one of the following:

- Press the  on the Edit toolbar
- From the **Edit** menu, choose **Copy** (Alt+E, C)
- Press Ctrl+C


The cursor will change to an hollow crosshair and you will be prompted to click on a position in the object you want copied. The position you choose is very important because it will be that same relative position in the copy that will be plotted at the next point you select, the destination point. The cursor will change to a crosshair and you will then be prompted to click on a destination point, on which the same relative position will be plotted, and all the other points in the copy will be plotted relative to that point.

---

See Also:    [Delete Object](#)  
              [Mirror Modes](#)

## Join Object

There are times when combining positions into a single object would make editing simpler and more efficient. The joined positions can then be treated as a single object when moving, copying, rotating, scaling, etc. To start the Join feature do one of the following:

- Press the  button on the Edit toolbar
- From the **Edit** menu, choose **Join** (Alt+E, N)
- Press Ctrl+N

The Select Method dialog box will prompt you to identify the method of joining you desire. Your selections include joining by object, area, or all positions.


If the object or area methods are selected, the cursor will change to an hollow crosshair and you will be prompted to either click on any position in two objects, or to surround an area by dragging a rectangle around the positions you want joined. The selected positions will flash to indicate their joining.

---

See Also: [Display Object Information](#)

## Delete Object

To start the Delete feature do one of the following:

- Press the  button on the Edit toolbar
- From the **Edit** menu, choose **Delete** (Alt+E, D)
- Press Ctrl+D

The Select Method dialog box will prompt you to identify the method of selection you desire. Your choices include deleting an object, area, the last object drawn, or all positions. If last object drawn is selected MicroChart/32 automatically deletes the object and no other input is required.


If the object or area methods are selected, the cursor will change to an hollow crosshair and you will be prompted to either click on an object, or to surround an area by dragging a rectangle around the positions you want deleted.

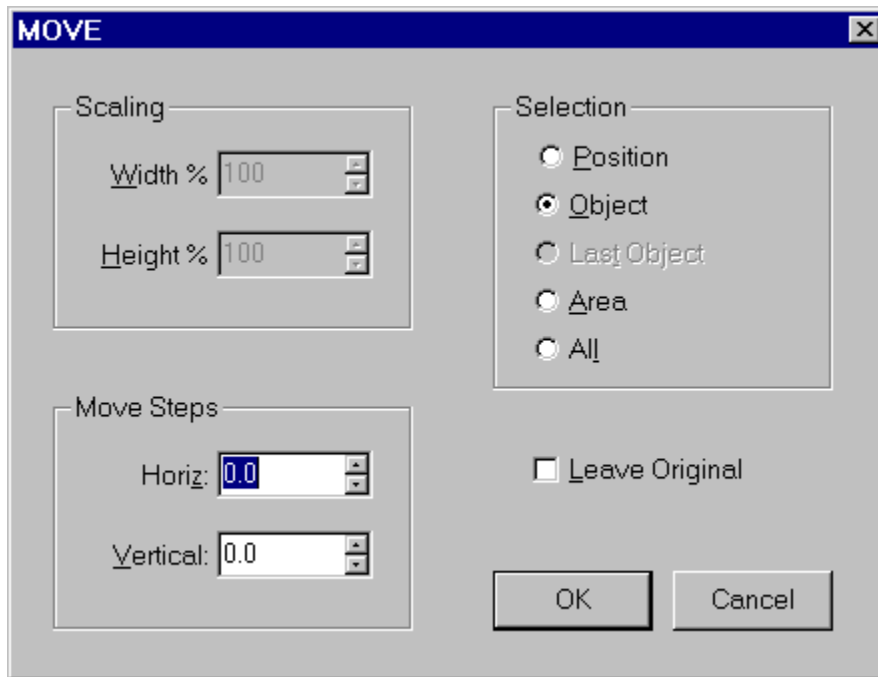
---

See Also: [Redefine Object](#)

## Move Object

To start the Move feature do one of the following:

- Press the  button on the Edit toolbar
- From the **Edit** menu, choose **Move** (Alt+E, M)
- Press Ctrl+F



The Select Method dialog box will prompt you to identify the method of selection you desire. Your choices include moving an object, area, or all positions. Enter the horizontal and vertical steps to move in the Move group of the dialog box..


If the object or area methods are selected, the cursor will change to an hollow crosshair and you will be prompted to either click on an object, or to surround an area by dragging a rectangle around the positions you want moved. If the Leave Original checkbox is enabled and checked, the original positions selected to move will remain and a copy of those positions will be plotted in the new location.

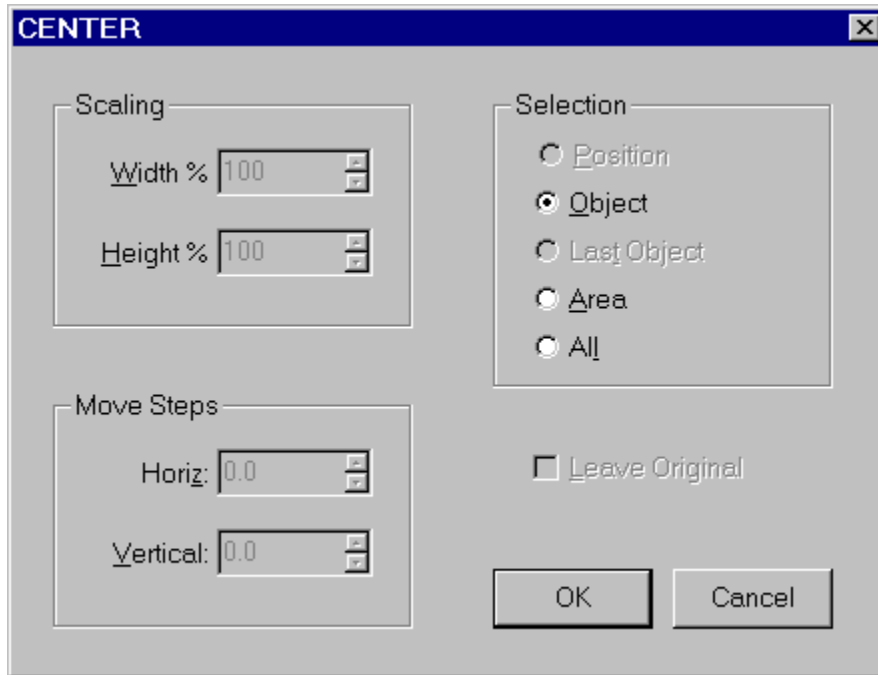
---

See Also: [Rotate Object](#)  
[Center Object](#)  
[Scale Object](#)

## Center Object

To start the Center feature do one of the following:

- Press the  button on the Edit toolbar
- From the **Edit** menu, choose **Center** (Alt+E, T)
- Press Ctrl+T



The Select Method dialog box will prompt you to identify the method of selection you desire. Your choices include centering an object, area, or all positions.


If the object or area methods are selected, the cursor will change to an hollow crosshair and you will be prompted to either click on an object, or to surround an area by dragging a rectangle around the positions you want centered. If the Leave Original checkbox is enabled and checked, the original positions selected to center will remain and a copy of those positions will be plotted in the new location.

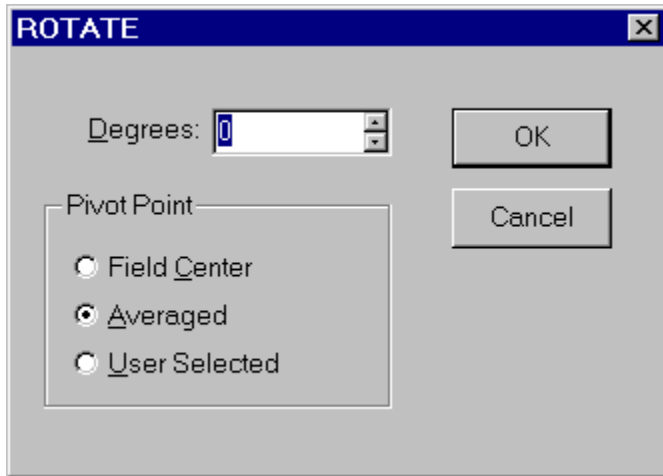
---

See Also: [Move Object](#)  
[Rotate Object](#)  
[Scale Object](#)

## Rotate Object

To start the Rotate feature do one of the following:

- Press the  button on the Edit toolbar
- From the **Edit** menu, choose **Rotate** (Alt+E, R)
- Press Ctrl+R



The Rotate dialog box will prompt you for a degree of rotation and a pivot point selection. To rotate positions in a clockwise direction, enter a positive number in the Degrees box. To rotate positions in a counterclockwise direction, enter a negative number.

The Select Method dialog box will then prompt you to identify the method of selection you desire. Your choices include rotating an object, area, or all positions.


If the object or area methods are selected, the cursor will change to an hollow crosshair and you will be prompted to either click on an object, or to surround an area by dragging a rectangle around the positions you want to rotate. If the Leave Original checkbox is enabled and checked, the original positions selected to rotate will remain and a copy of those positions will be plotted in the new location.

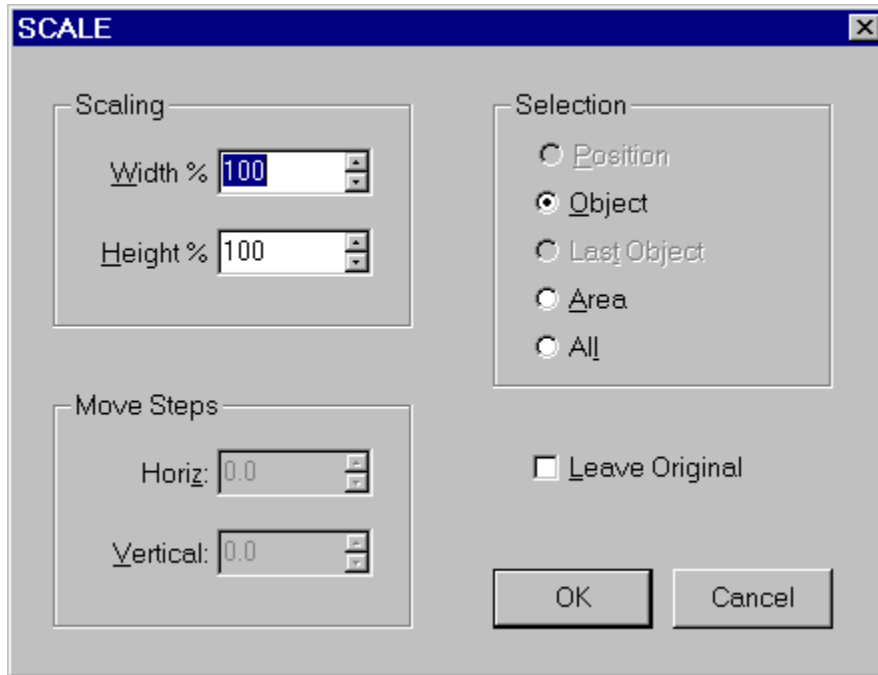
---

See Also: [Move Object](#)  
[Center Object](#)  
[Scale Object](#)

## Scale Object

To start the Scale feature do one of the following:

- Press the  button on the Edit toolbar
- From the **Edit** menu, choose **Scale** (Alt+E, L)
- Press Ctrl+L



The Select Method dialog box will then prompt you to identify the method of selection you desire. Your choices include scaling an object, area, or all positions. Enter the horizontal and vertical scaling percentages in the Scaling group of the dialog box.

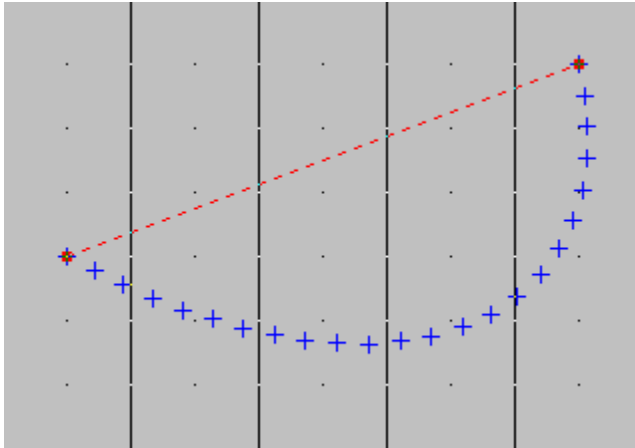
If the object or area methods are selected, the cursor will change to an hollow crosshair and you will be prompted to either click on an object, or to surround an area by dragging a rectangle around the positions you want scaled. If the Leave Original checkbox is enabled and checked, the original positions selected to scale will remain and a copy of those positions will be plotted in the new location.

---


See Also: [Move Object](#)  
[Center Object](#)  
[Rotate Object](#)



## Tape Measure Tool



Use the Tape Measure Tool to measure the distance between two points in step units (22.5 inches). To select the Tape Measure Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the **Tape Measure** Tool.
- From the **Tools** menu, choose **Tape Measure** (Alt+T, T).
- Press F3.


### Input Points

---

1. Endpoint #1.
2. Endpoint #2.

## Point Tool

Use the Point Tool to plot a single point on the chart. To select the Point Tool do one of the following:

- Press the  button on the Tool toolbar
- From the **Tools** menu, choose **Point** (Alt+T, P).
- Click on the Tool Box on the Status Bar and select the Point Tool.
- Press F4.

### Input Point

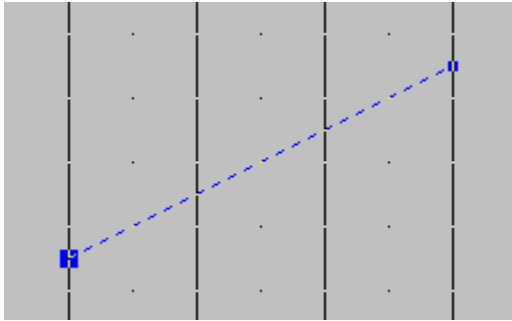
---

1. Point.


---

See Also: [Adding Objects](#)

## Line Tool



The Line Tool plots a straight line between two endpoints, evenly spacing the desired positions between them. To select the Line Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the Line Tool.
- From the Tools menu, choose Line (Alt+T, L).
- Press F5.

### Input Points

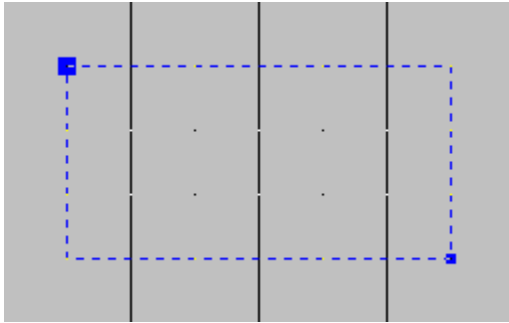
---

1. Endpoint #1.
2. Endpoint #2.


---

See Also: [Adding Objects](#)

## Block Tool



The Block Tool plots a rectangular block as defined by two opposite corner points, evenly spacing the positions within the rows and columns of the block. To select the Block Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the Block Tool.
- From the Tools menu, choose Block (Alt+T, B).
- Press F6.

---

### Input Points


1. Corner point.
2. Opposite corner point.

---

See Also: [Hollow Block Tool](#)  
[Adding Objects](#)

## Hollow Block Tool

The Hollow Block Tool plots a rectangular block outline as defined by two opposite corner points, evenly spacing the positions between the outer rows and columns of the block. To select the Hollow Block Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the H-Block Tool.
- From the Tools menu, choose Hollow Block (Alt+T, O).
- Press SHIFT+F6.

### Input Points

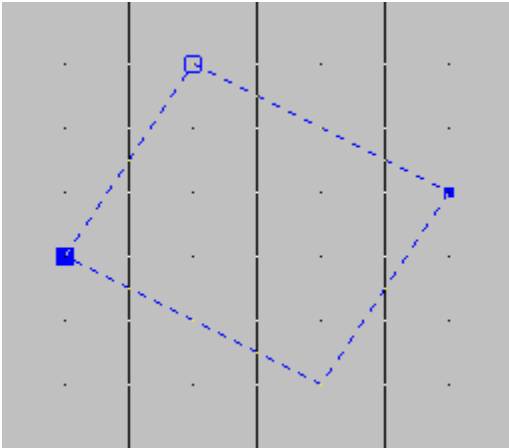
---

1. Corner point.
2. Opposite corner point.


---

See Also: [Block Tool](#)  
[Adding Objects](#)

## Parallelogram Tool



The Parallelogram Tool plots a parallelogram as defined by three adjacent corner points, evenly spacing the positions within the rows and columns of the Parallelogram. To select the Parallelogram Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the Parallelogram Tool.
- From the Tools menu, choose Parallelogram (Alt+T, H).
- Press ALT+F6.

### Input Points

---

1. Corner point #1.
2. Adjacent corner point #2. The distance between the 1st and the 2nd corner points will be considered the *row* regardless of orientation.
3. Adjacent corner point #3. The distance between the 2nd and the 3rd corner points will be considered the *column* regardless of orientation.

---

See Also: [Hollow Parallelogram Tool](#)  
[Adding Objects](#)

## Hollow Parallelogram Tool

The Hollow Parallelogram Tool plots a parallelogram as defined by three adjacent corner points, evenly spacing the positions within the outer rows and columns of the Parallelogram. To select the Hollow Parallelogram Tool do one of the following:



Press the



button on the Tool toolbar



Click on the Tool Box on the Status Bar and select the H-Parallelogram Tool.



From the Tools menu, choose Hollow Parallelogram (Alt+T, W).



Press ALT+SHIFT+F6.

### Input Points

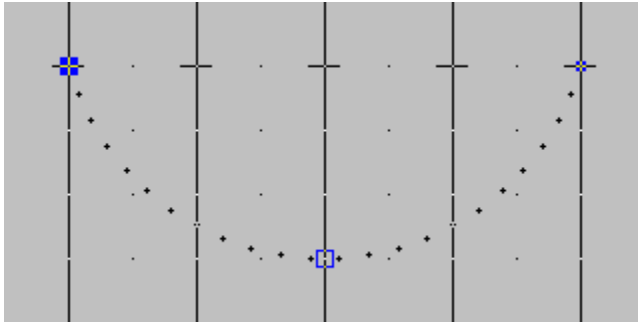
---

1. Corner point #1.
2. Adjacent corner point #2. The distance between the 1st and the 2nd corner points will be considered the *row* regardless of orientation.
3. Adjacent corner point #3. The distance between the 2nd and the 3rd corner points will be considered the *column* regardless of orientation.


---

See Also: [Parallelogram Tool](#)  
[Adding Objects](#)

## Arc Tool



The Arc Tool plots a circular arc as defined by two end points and a third intersection point, evenly spacing the positions within the arc. To select the Arc Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the Arc Tool.
- From the Tools menu, choose Arc (Alt+T, A).
- Press F7.

### Input Points

---

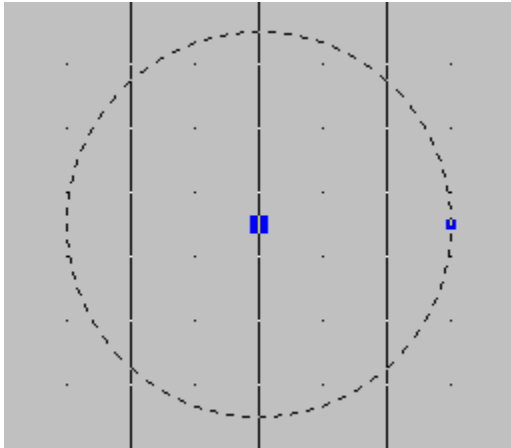
1. Endpoint #1.
2. Endpoint #2.
3. A point of intersection to define the depth or curvature of the arc. A position may not necessarily be plotted at this point, depending on the number of positions, position spacing, and the size of the arc.

---


See Also: [Simple Bezier Tool](#)  
[Complex Bezier Tool](#)  
[Adding Objects](#)



## Circle by Radius Tool



The Circle by Radius Tool plots a circle as defined by a center point and a point on the circle (radius) indicating the starting position, evenly spacing the positions on the circle. To select the Circle by Radius Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the Circle-R Tool.
- From the Tools menu, choose Circle by Radius (Alt+T, R).
- Press F8.

### Input Points

---

1. Center of circle.
  2. A point on the circle where the first position will be plotted.
- 

See Also: [Circle by Step Tool](#)  
[Adding Objects](#)

## Circle by Step Tool

The Circle by Step Tool plots a circle as defined by a center point and a point on a vector angle to indicate the starting position, evenly spacing the positions on the circle. To select the Circle by Step Tool do one of the following:



Press the



button on the Tool toolbar



Click on the Tool Box on the Status Bar and select the Circle-S Tool.



From the Tools menu, choose Circle by Step (Alt+T, S).



Press ALT+F8.

### Input Points

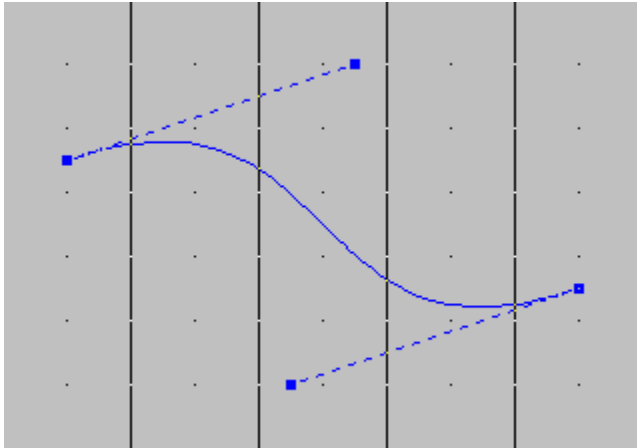
---

1. Center point of circle.
2. A point defining an angle with the center on which the first position will be plotted.


---

See Also:     [Circle by Radius Tool](#)  
                  [Adding Objects](#)

## Simple Bezier Curve Tool



The Simple Bezier Curve Tool plots a freeform curve as defined by two endpoints and two handle points, evenly spacing the positions on the curve. Use the handle points to adjust the curvature or bend of this tool. To select the Simple Bezier Curve Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the Bezier-S Tool.
- From the Tools menu, choose Bezier-Simple (Alt+T, Z).
- Press F9.

### Input Points

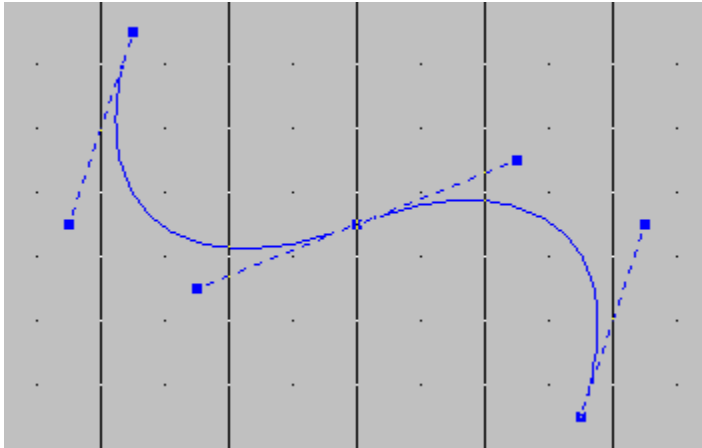
---

1. Endpoint #1.
2. Endpoint #2. Two handle points will be automatically be drawn by MicroChart/32.


---

See Also: [Complex Bezier Curve Tool](#)  
[Adding Objects](#)

## Complex Bezier Curve Tool



The Complex Bezier Curve Tool plots a freeform curve as defined by two endpoints, a central control point, and four handle points, evenly spacing the positions on the curve. Use the control and handle points to adjust the curvature or bend of this tool. To select the Complex Bezier Curve Tool do one of the following:

- Press the  button on the Tool toolbar
- Click on the Tool Box on the Status Bar and select the Bezier-C Tool.
- From the Tools menu, choose Bezier-Complex (Alt+T, X).
- Press ALT+F9.

---

### Input Points

1. Endpoint #1.
2. Endpoint #2. A third control point and four handle points will be automatically be drawn by MicroChart/32.

---

See Also: [Simple Bezier Curve Tool](#)  
[Adding Objects](#)

## Cursor Movement

Cursor movement can be accomplished by either the mouse or keyboard by pressing the arrow keys. By holding down the Ctrl key and pressing the arrow keys the cursor will move in approximately two step intervals. Other movement keys include the HOME key which moves the cursor to the center of the grid, PgUp and PgDn key which moves the cursor approximately two steps up or down respectively, and Ctrl-Home and Ctrl-End which moves the cursor to the top or bottom of the grid respectively.

As the cursor is moved, the distance from the grid origin is displayed in the horizontal and vertical position boxes at the bottom right of the screen. These measurement represents step units on the selected grid style and can be used to accurately position objects on the grid.

---

See Also:     [Keyboard Commands](#)

## Keyboard Commands

### CURSOR MOVEMENT

Ctrl-Down	Down Two Steps
Ctrl-Right	Right Two Steps
Ctrl-Left	Left Steps
Ctrl-Up	Up Two Steps
Down	Down One Screen Pixel
End	Grid Center
Home	Grid Center
Left	Left One Screen Pixel
PgDn	Down Two Steps
PgUp	Up Two Steps
Right	Right One Screen Pixel
Up	Up One Screen Pixel

### WORK ENVIRONMENT

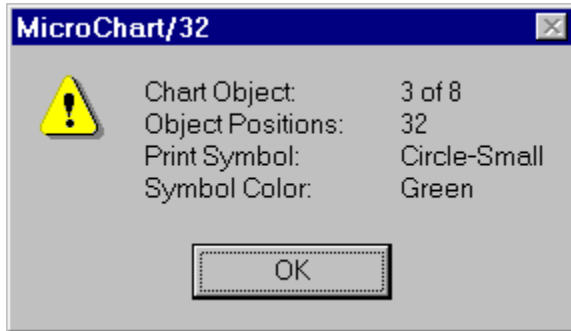
+	Screen Symbol - Cycle Forward
-	Screen Symbol - Cycle Backward
M	Mirror - Cycle Forward
S	Screen Symbol - Cycle Forward
Shift-S	Symbol Color - Cycle Forward
T	Tool - Cycle Forward
Shift-T	Tool - Cycle Backward
F1	Help Contents
F3	Tape Measure
F4	Point Tool
Alt-F4	Exit
F5	Line Tool
F6	Block Tool
Shift-F6	Hollow Block
Alt-F6	Parallelogram Tool
Alt-Shift-F6	Hollow Parallelogram Tool
F7	Arc Tool
F8	Circle - Radius Tool
Alt-F8	Circle - Step Tool
F9	Bezier Simple Tool
Alt-F9	Bezier Complex Tool

### COMMANDS

Ctrl-A	Alter Dialog Box
Ctrl-B	Batch Print Dialog Box
Ctrl-C	Copy Object or Area
Ctrl-D	Delete Object, Area, or All
Ctrl-F	Move Object, Area, or All
Ctrl-G	Merge
Ctrl-I	Summary Information
Ctrl-L	Scale Object, Area, or All
Ctrl-N	Join Object, Area or All
Ctrl-O	Open Dialog Box
Ctrl-P	Print Dialog Box
Ctrl-R	Rotate Object, Area or All
Ctrl-S	Save Object, Area or All
Ctrl-T	Center Object, Area or All
Ctrl-V	Perspective View

## Display Object Information

Information about a specific point or object can be displayed in a dialog by pointing the cursor over any position in the chart and clicking the right mouse button. The information that is displayed is described in the following example:



**Chart Object:**           **3 of 8**

The selected position is the 3rd third object of eight total objects in the current chart.

**Object Positions:**   **32**

The selected position belongs to an object with 32 positions.

**Print Symbol:**           **Circle-Small**

The selected position will be printed using the Circle-Small symbol.

**Symbol Color:**           **Green**

The selected position will be printed in the color Green (if Print Colors option is enabled).

**NOTE:** Because both the screen and print symbols of any position(s) within a single object can be modified by the *Alter Symbol* function, the print symbol displayed applies only to the specific position pointed to.

---

See Also:    [Setting the Current Symbol Shape and Color](#)  
              [Altering Object Symbols and Colors](#)

## Symbol Shape and Color

The current screen symbol shape and color is displayed in the Symbol Box on the Status Bar at the bottom the MicroChart/32 screen. The symbol shape can be changed by pressing the '+' or '-' key or by clicking with either the left or right mouse button to cycle either forward or backwards through the available symbols.

To change the current symbol color, hold down the Control key while clicking either the left or right mouse button to cycle either forward or backwards through the available colors.

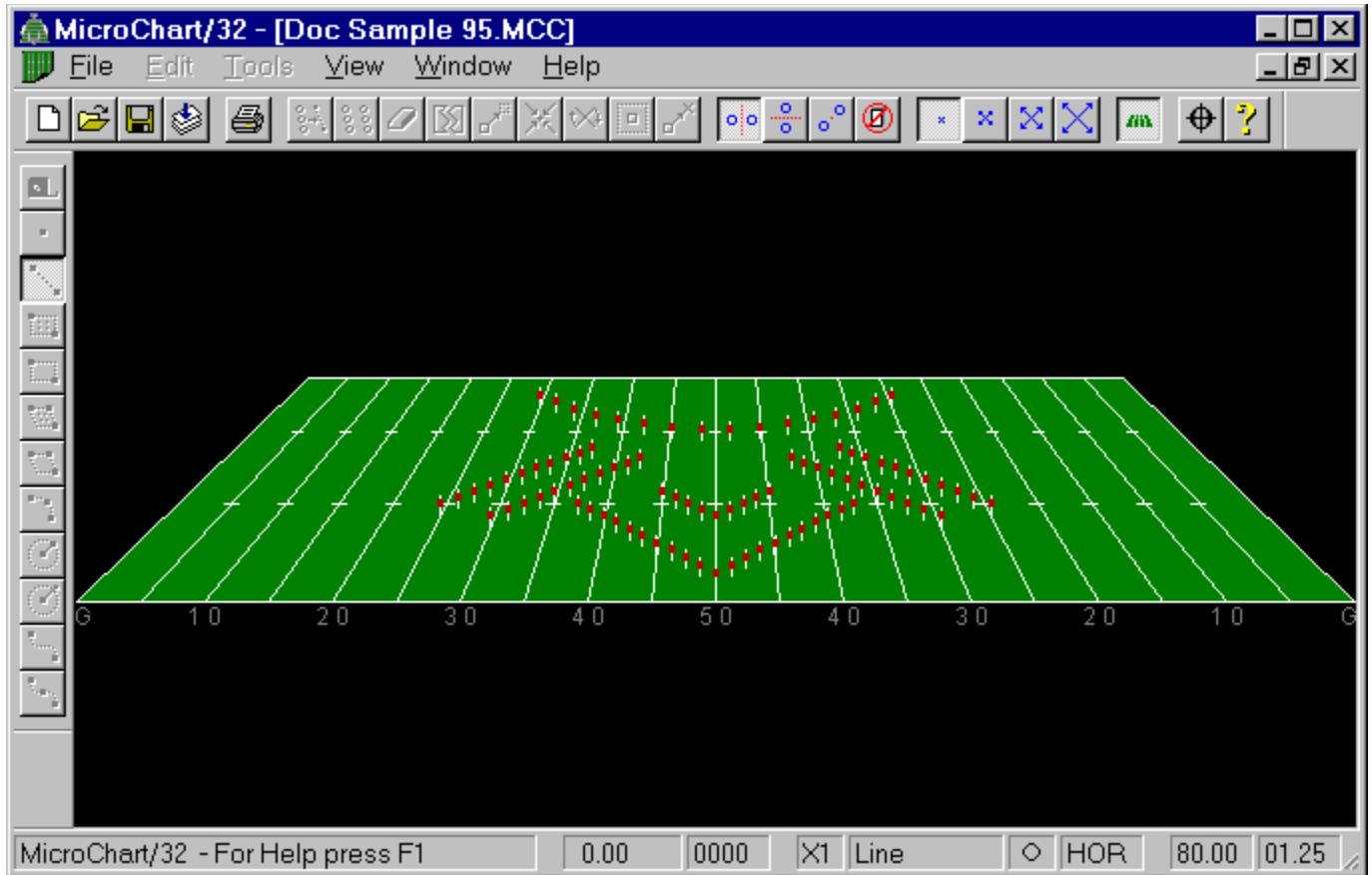
If a new symbol shape and/or color is selected when completing the Chart Object dialog box during Input Stage III, the new selections become the current symbol shape and color.

---

See Also:     [Display Object Information](#)  
                 [Altering Object Symbols and Colors](#)




## Perspective View



MicroChart/32 features a true perspective view to envision the presentation of your chart from your audiences' point of view. Selecting from one of three height levels, three distances, and two sides, you can design your drills to accommodate for specific stadium configurations. Perspective View will display each chart position as an upright standing figure to simulate the field performer.

To view the current chart in perspective view, do one of the following:


- Clicking on the  button on the Edit toolbar.
- Click the *right* mouse button on a blank part of the grid.
- From the View menu, choose Perspective, View (Alt+V, P, V).
- Press Ctrl+V.

---

See Also: [Perspective Options](#)

## MicroChart Options

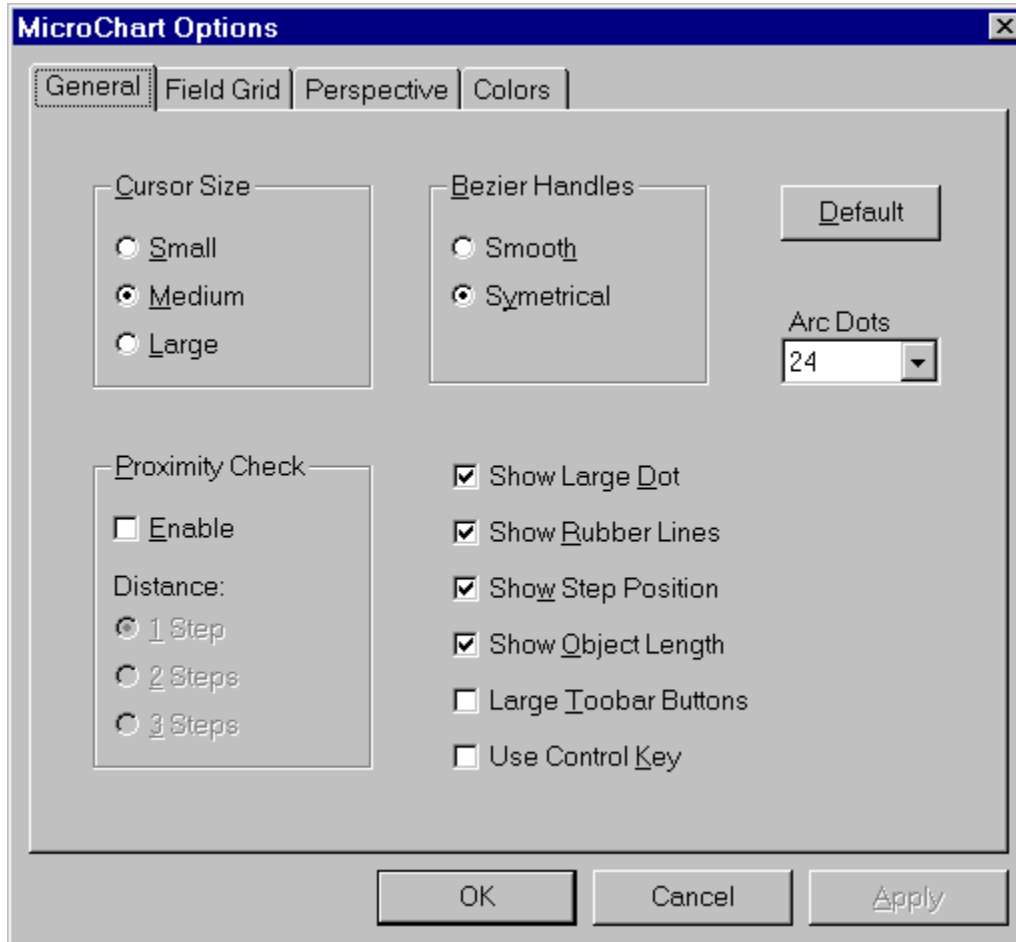
MicroChart/32 options can be selected by either:

- Clicking on the  button on the toolbar.
- Selecting **View / Options...** from the menu bar.

The Options pages include:

<b><u>General</u></b>	These options allows for the customization of the MicroChart/32 visual workspace and charting style.
<b><u>Field Grid</u></b>	Customization of the MicroChart/32 work grid and all appropriate markings including grid origin, number style, hash style, zoom factor, and yardline markings.
<b><u>Perspective</u></b>	The Perspective View function displays a true perspective view of your chart. You can select the height, side, and distance of your viewpoint in the Perspective Settings dialog box. As an added dimension to simulate realism, the Show Torso option draws a more human looking figure at each position. Colors for the legs and the torso portion can be assigned separately.
<b><u>Colors</u></b>	Support for color to both the displayed and printed figures help visually separate and identify chart objects. Color selection is made when completing the Chart Object dialog box during input Stage III or when making changes with the Alter Symbol dialog box. The eight total colors include Black, Blue, Green, Cyan, Red, Magenta, Yellow, and White.

## General Options



These options allow for the customization of the MicroChart/32 visual workspace and charting style. The following describes the function of each option:

### Cursor Size

MicroChart/32 provides three crosshair cursor sizes. Select the preferred size by selecting the appropriate radio button. (Default: Medium)

### Proximity Check

MicroChart/32 can check the proximity or closeness of the positions before they are plotted to avoid collisions in the design. To enable this feature check the *Enable* box under the *Proximity Check* option and select a minimum plotting distance of 1, 2, or 4 steps (in standard step units of 22.5 inches). A check will be made before each new position is plotted to see if it is equal to or farther than the minimum charting distance. This will insure that no position will be plotted closer to another by that distance. (Default: Off)

### Bezier Handles

In the Complex Bezier Tool a third central control point appears after entering the first two endpoints. This control point is accompanied by two additional handles that have slightly different responses depending on the *Bezier Handles* setting. In the *Smooth* setting, the two handles may be at different distances from the control point. In the *Symmetrical* setting, the two handles are always equidistant from the control point. (Default: Smooth)

### Arc Dots

Select the desired amount of dots to represent the arc in edit mode. The visual feedback provided by these dots provides for greater accuracy in the design of drills. During input, the arc is represented by these dots that adjust to the movements of its control points. The size and visibility of these dots will depend on the Large Dot selection as set in MicroChart/32 Options. *(Default: 24)*

**NOTE:** Depending on the speed of your computer, an increase in the amount and size of dots used to represent the arc may slow down the response of the tool.

### Show Large Dots

Display large dots for better visibility. On high resolution monitors individual pixels can be extremely small and difficult to see. Enabling this option will represent the dot symbol approximately three times the normal dot width. *(Default: On)*

### Show Rubber Lines

Display dotted lines to represent objects. During Input Stage I & II dotted outlines are normally used to display the object's size and shape as they are sized and shaped to their desired position. If this option is disabled only the control points will be visible while editing the object. *(Default: On)*

### Show Step Position

Display cursor position in steps relative to the grid origin. These numbers represent the step distance of the crosshair cursor from the origin. This information can aid in the accurate placement of chart objects. *(Default: On)*

### Show Object Length

Display length of current line or curve. During Input Stage II the status box will display the length of the line or curve currently being edited. This information can be used to calculate position count and spacing. Use the Tape Measure Tool position to find the length in steps between two points. *(Default: On)*

### Large Toolbar Buttons

Display the toolbars using larger buttons for greater visibility. *(Default: Off)*

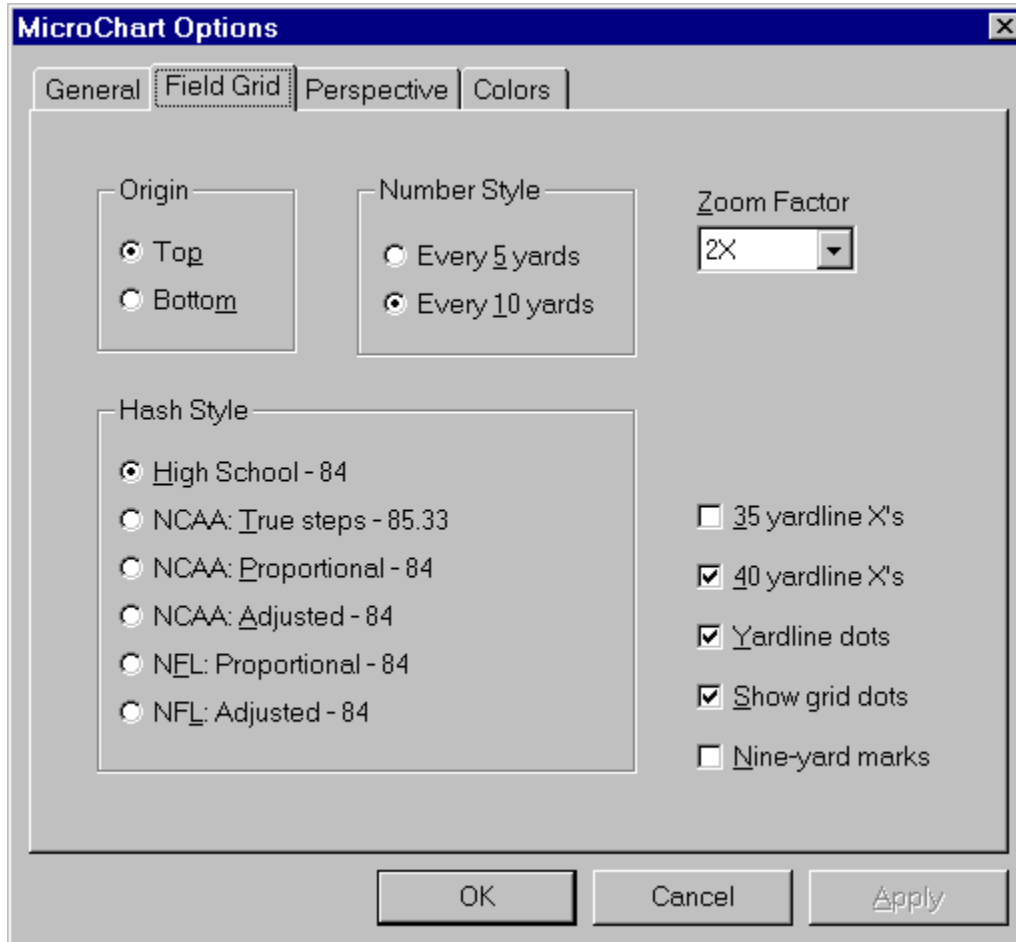
### Use Control Key

Select this option to force the use of the Control key when entering objects with the mouse. This is provided for backwards compatibility for users of previous versions of MicroChart. *(Default: Off)*

### Default Button

Revert all settings to default MicroChart/32 settings.

## Field Grid Options



The Configuration dialog box allows for the customization of the MicroChart/32 visual workspace and charting style. The following describes the function of each option:

### Origin

The grid origin affects the orientation of both the on-screen grid dots and the printed grid. The steps displayed in the step boxes on the Status Bar represent the distance from this origin. The grid origin is saved with the chart information and is automatically set when loading a chart file.

- |               |  |
|---------------|--|
| <i>Top</i>    | Step coordinate system based on the top of the 50 yardline on the far sideline.<br>(default) |
| <i>Bottom</i> | Step coordinate system based on the bottom of the 50 on the near sideline.                   |

### Number Style

Select the desired setting to display the yardline numbers every 5 or 10 yards.

- |                 |  |
|-----------------|--|
| <i>Every 5</i>  | Display yardline numbers every 5 yards.            |
| <i>Every 10</i> | Display yardline numbers every 10 yards. (default) |

### Zoom Factor

Select the appropriate amount of magnification for most of your charting needs. This will be the default magnification for all new charts. Zoom magnification for the current chart can be changed on the fly by

pressing the appropriate zoom button on the edit toolbar.

### Hash Style

The numbers in parenthesis at the end of each hash style represent the distance in steps for that style from sideline to hash, hash to hash, and hash to sideline. The hash style is saved with the other chart information and is automatically set when loading a chart file.

<i>High School</i>	Hash mark placed to divide the field width evenly in three, spaced 53 feet, 4 inches from each sideline and from each other. (28, 28, 28)
<i>NCAA True Steps</i>	Hash mark placed at 60 feet from the sideline with 40 feet between each hash mark. (32, 21.33, 32)
<i>NCAA Proportional</i>	Hash mark placed at 60 feet from the sideline with 40 feet between each hash mark. (31.5, 21, 31.5)
<i>NCAA: Adjusted</i>	Hash mark placed at 60 feet from the sideline with 40 feet between each hash mark. (32, 20, 32)
<i>NFL: Proportional</i>	Hash mark placed at 70¾ feet (849 inches) from the sideline with 18½ feet (222 inches) between each hash mark. (37.144, 9.712, 37.144)
<i>NFL: Adjusted</i>	Hash mark placed at 70¾ feet (849 inches) from the sideline with 18½ feet (222 inches) between each hash mark. (37, 10, 37)

### 35 yardline X's

Display X marks centered on both 35 yardlines. (*Default: Off*)

### 40 yardline X's

Display X marks centered on both 40 yardlines. (*Default: Off*)

### Yardline dots

Display dot marks on yardlines for . (*Default: On*)

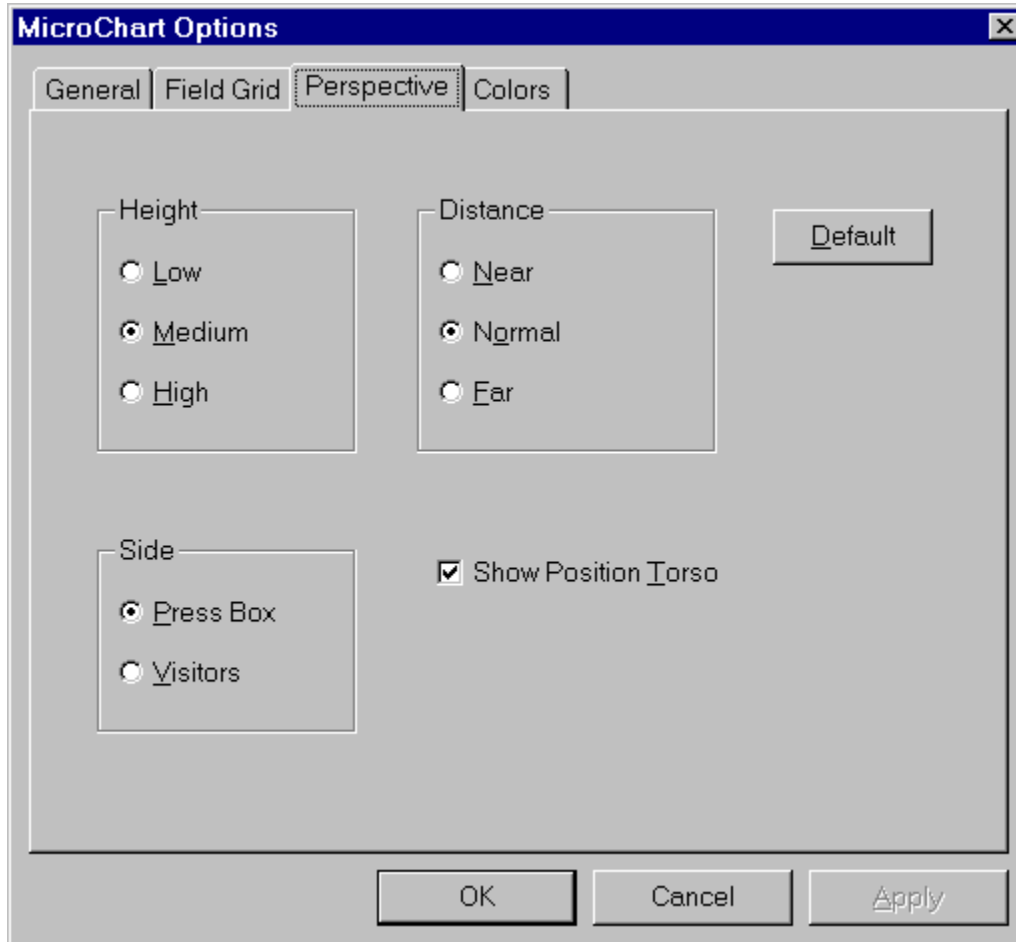
### Show grid dots

Display a 4-step dotted grid on the charting as a background to aid in the accurate placement of objects. To set the printed grid size see [Printing a Chart](#). (*Default: On*)

### Nine yard marks

Display the NCAA nine-yard markings on each yardline. (*Default: Off*)

## Perspective Options



### Height

Select the most appropriate distance setting to approximate the site of performance. Generally, the Medium setting should accommodate for most viewing distances.

- |               |  |
|---------------|--|
| <i>Low</i>    | Low viewing height                       |
| <i>Medium</i> | Medium viewing height ( <i>default</i> ) |
| <i>High</i>   | High viewing height                      |

### Distance

Select the most appropriate distance setting to approximate the site of performance. Generally, the Normal setting should accommodate for most viewing distances.

- |               |  |
|---------------|--|
| <i>Near</i>   | Near viewing distance.                       |
| <i>Normal</i> | Average viewing distance. ( <i>default</i> ) |
| <i>Far</i>    | Far viewing distance.                        |

### Side

Normally set to the Press Box side the designer may choose to observe the view from the visitors side of the field.

- |                  |   |
|------------------|---|
| <i>Press Box</i> | View from the press box side of the field. ( <i>default</i> ) |
|------------------|---|

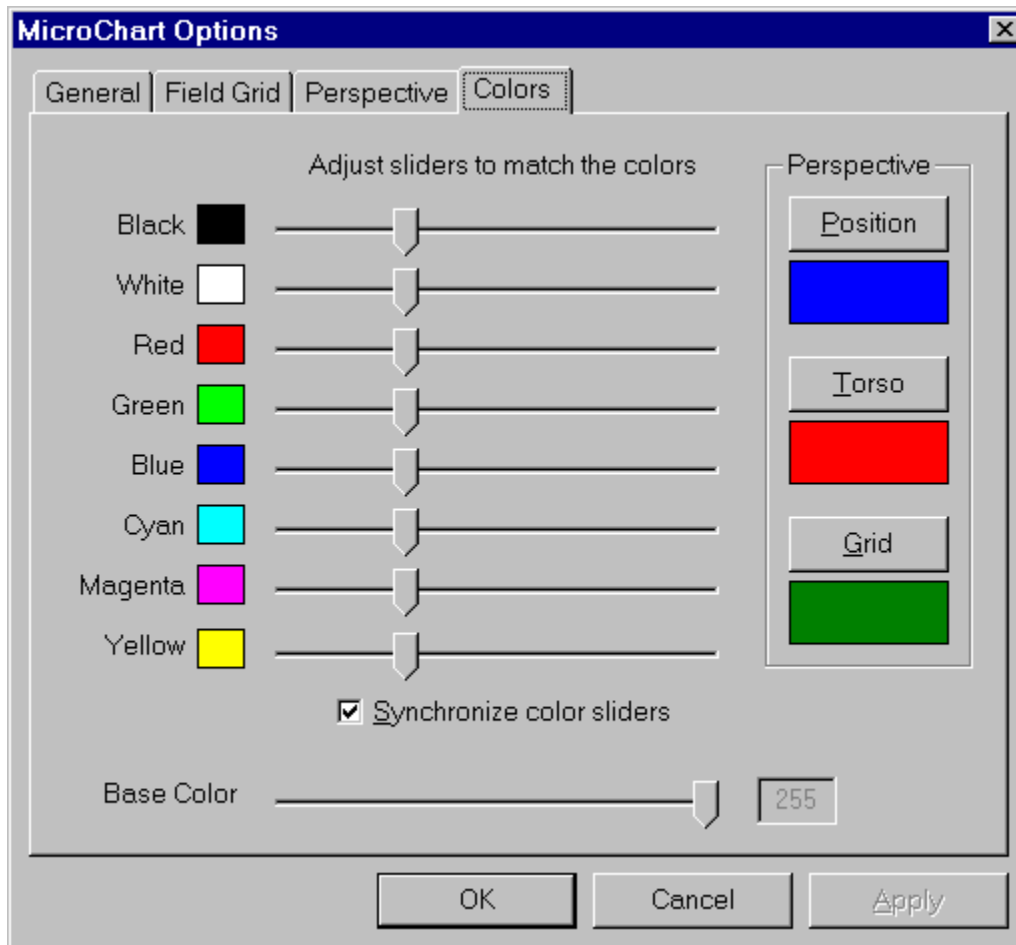
*Visitors*      View from the visitors side of the field (opposite the press box).

**Show Position Torso**

Setting this option draws a thicker torso on each position in perspective view to give a more human looking figure. Furthermore, colors for the legs and the torso portion can be assigned independently.  
(Default: On)



## Colors Options



### Color Sliders

Depending on the Windows color configuration of your system you may need to adjust the default color settings used by MicroChart/32 by adjusting the color sliders to match the corresponding colors to their descriptions.

### Synchronize color sliders

Select this option to synchronize the movement of all color sliders. To adjust the sliders independently de-select this option. (*Default: On*)

### Base Color

Generally this setting will not need to be adjusted unless the color sliders above it cannot be adjusted to match the corresponding color.

### Perspective

These settings allow the customization of the perspective view to closely represent your uniform and grid color.

- |                 |   |
|-----------------|---|
| <i>Position</i> | Press this button to select the color used to display all positions.                      |
| <i>Torso</i>    | Press this button to select the color used to display the torso portion of all positions. |
| <i>Grid</i>     | Press this button to select the color used to display the field grid.                     |

## Future Enhancements

Your comments, questions and suggestions are always appreciated and in fact help mold the future design of MicroChart/32. Some of the enhancements suggested for possible future releases include:

- Polygon shape tool
- Zoom print areas
- Animation feature

Please feel free to send your comments to me at:

- CompuServe: 75021,3701
- Internet: [khigaki@aloha.net](mailto:khigaki@aloha.net)

Please visit the MicroChart/32 Web home page at:

- <http://www.aloha.net/~khigaki/>

## European Registration Service

European registrations can be done easily in cooperation with KELLY Data - KDL Registrierungsservice. Simply contact them by fax or phone and they will handle your registration. You can also contact them directly to place an order.

KDL-Registrierungsservice - KELLY Data GmbH  
Lena-Christ-Str.: 50  
82152 Martinsried/Munich  
Germany  
phone: ++49-89-895626-50  
fax: ++49-89-895626-99

The KDL-Registrierungsservice will notify me (the author) of your order, and I will forward your registration number to you ASAP. Contact KELLY Data for orders only. Please direct all other questions to me.

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