

WinMark^{pro}

WinMark Pro[®] **User's Guide**

Version 2.0
(for software Version 1.0.6 build 2856)

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getting started

Use information in this section to install WinMark Pro software and create a sample drawing to be laser marked.

This section contains the following information:

- Introduction – lists new features incorporated into version 2841 and describes computer system requirements, software upgrades, and technical support.
- Installation – explains how to install WinMark Pro.
- Starting WinMark Pro – explains how to start the software and set initial operating parameters.
- Drawing Editor – describes WinMark Pro’s drawing environment.
- Creating a drawing – steps through the creation of a sample drawing.

getting started

Introduction

Welcome to SYNRAD's WinMark Pro® software— software that gives you the power to create text and bar code images or import professional graphics that can then be laser marked on your product from a Windows 95 or Windows 98 desktop. In addition to creating virtually any image, WinMark Pro is also capable of controlling every aspect of the laser marking process including incrementing serial numbers, changing laser parameters, and interfacing with parts handling equipment.

New features

WinMark Pro software, Version 1.0.6 build 2856, supports SYNRAD's new Fenix and FH Series marking heads and is also backward compatible with DH and SH Series heads. New software features include:

- Improved marking speed
- Spot Marking Style for glass marking
- Queries Fenix/FH heads for errors
- Better circle and rotated image quality
- New interface for object delays

System requirements

In order to install and run WinMark Pro software, your computer system must meet the following minimum requirements:

- Windows 95/98 operating system
- 16-megabytes (MB) RAM
- SVGA monitor (800 × 600 display)
- Pentium 90MHz or faster (min 486/66)
- 10-MB hard drive space

Upgrades

Unlike many other software packages that cost hundreds of dollars to upgrade, WinMark Pro upgrades are made available free of charge on the WinMark Pro web site. Users should periodically check our web site at <http://www.winmark.com> to download the latest version of WinMark Pro software.

Technical support

Call 1-800-SYNRAD1 between the hours of 8:30 A.M. to 5:00 P.M. PST or visit the WinMark Pro web site at <http://www.winmark.com>.

getting started

Installation

Inventory

The WinMark Pro software package includes the following items (shown in Figure 1-1):

- Two WinMark Pro installation disks
- Two WinMark Pro File Import Filters disks
- One Hardlock

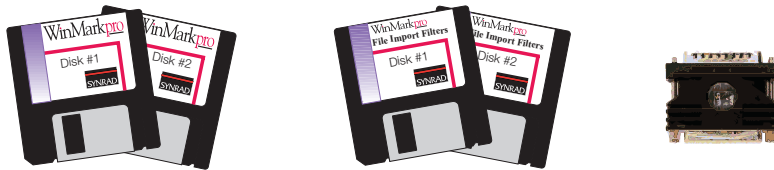


Figure 1-1 WinMark Pro inventory

Hardlock

A Hardlock is installed on the printer port to prevent unauthorized use of WinMark Pro software. If the Hardlock is not installed, WinMark can still be opened and files can be created, but marking will not be enabled. Each version of software, WinMark Pro and WinMark Lite, has its own specific Hardlock (WinMark Lite Hardlocks are laser marked “Lite” and their serial numbers end with an “L”).

Install the Hardlock by performing the following steps:

- 1 Locate the Hardlock inside the plastic sleeve in the front of this User’s Guide.
- 2 Disconnect the printer cable from the back of your computer.
- 3 Connect the Hardlock to the printer port.
- 4 Connect the printer cable to the Hardlock.

getting started

Installation

WinMark Pro

To install WinMark Pro on your computer:

- 1 Locate the WinMark Pro installation disks inside the plastic sleeve in the front of this User's Guide.
- 2 Exit all programs.
- 3 Insert WinMark Pro Disk 1 into drive A.
- 4 Click the *Start* button on the taskbar and then click *Run*.
- 5 Type *A:\setup* in the *Run* dialog box.
- 6 Click *OK*, then follow the on-screen instructions.

WinMark Launcher

As part of the software installation, WinMark Launcher is placed in the *WinMark* folder and a shortcut is placed on the desktop. The Launcher allows operators to open existing *.mkh* files for marking without opening WinMark Pro's Drawing Editor. Using WinMark's Startup Options command, WinMark Launcher can also be configured to load a specific file and start automatically when your computer is powered up.

getting started

Installation

Digital Scope

DigScope.exe is a stand-alone program included in the *WinMark* folder. *Digital Scope* can test individual inputs and outputs, turn the laser beam on or off, or adjust the laser's output power level (Refer to Figure 1-2). This “manual” control is especially useful when testing or troubleshooting I/O connections through the digital fiber optic link.

Note: *Digital Scope*'s base address, 816, is the decimal equivalent of the Fiber Link Controller Card's base hexadecimal address of 330.

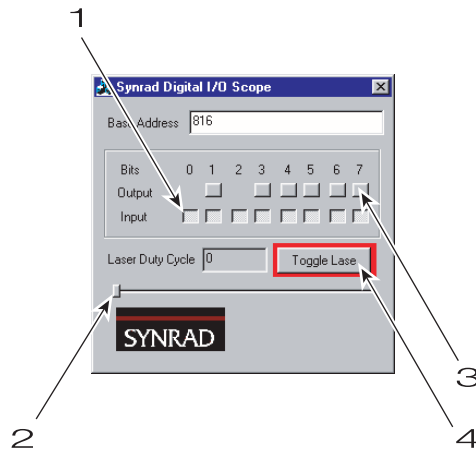


Figure 1-2 Digital Scope display

- 1 Input – “buttons” pop-up to indicate an input is active.
- 2 Slider – Drag the slider to set laser power between 0–100%. Power output is displayed in the *Laser Duty Cycle* box.
- 3 Output – press “buttons” to activate an output.
- 4 *Toggle Laser* – turns the laser On. Press again to toggle the laser Off.

Note: Close *Digital Scope* before attempting to operate the Marking Head using membrane panel pushbuttons or *WinMark Pro* software commands.

Note: If the Fast Acting Safety Interlock (FASI) feature is active, then input #3 on FH Series or Fenix marking systems, or input #5 on DH Series systems, must be active (high) before the laser will fire.

getting started

Installation

File Import Filters

WinMark Pro's File Import Filters allow you to import a wide variety of graphic file formats. Installation of the filters is optional and can be omitted if you do not intend to import graphics files from other applications.

To install File Import Filters, follow the steps below:

- 1 Locate the File Import Filters disks inside the plastic sleeve in the front of this User's Guide.
- 2 Insert File Import Filters Disk 1 into the drive A.
- 3 Click *Start* on the taskbar and then select *Run*.
- 4 Type *A:\setup* in the *Run* dialog box.
- 5 Click *OK* and follow the on-screen instructions.

Un-installing WinMark Pro

If you decide to remove WinMark Pro software:

- 1 Click the *Start* button on the taskbar.
- 2 Select *Programs* and then locate the *Synrad WinMark* folder.
- 3 Click the *Uninstall Synrad WinMark* icon.
- 4 Follow the on-screen instructions.

getting started

Starting WinMark Pro

Basic concepts

A mark file is created by placing text or graphic objects, or importing graphic files, into a drawing. Each individual object, including the Drawing Canvas itself, has its own unique set of properties whose default settings can be modified by the user. Each class of objects, all text objects for example, have specific sets of properties where each property defines some characteristic of that object. All objects also share a set of general properties that define their position and how the laser transfers that object's image to the workpiece. This ability to precisely control marking output by customizing drawing and object properties is one of the strengths of WinMark Pro software.

Starting the software

Start WinMark Pro by double-clicking the Shortcut To WinMark icon on your desktop, or follow these steps:

- 1 Click *Start* on the taskbar.
- 2 Select *Programs* and then locate the *Synrad WinMark* folder.
- 3 Click the *Synrad WinMark* icon.

During startup, WinMark Pro checks to see if a Hardlock is installed on the computer. If a Hardlock is found, WinMark starts the appropriate software version (Pro or Lite) that matches the Hardlock.

If no Hardlock is installed on the computer, a dialog box appears (Figure 1-3) prompting you to select the WinMark version you wish to run. Current WinMark Pro users should always specify the Pro version. New users should choose the version that matches their Hardlock.

Note: WinMark Lite can NOT read or mark files created in WinMark Pro.

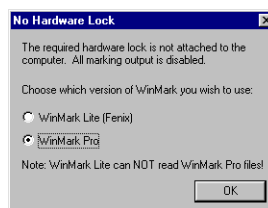


Figure 1-3 No Hardware Lock dialog box

getting started

Starting WinMark Pro

- 4 The first time WinMark Pro opens after a new installation, the *Lens Selection* dialog box (Figure 1-4) appears and prompts you to enter the size of the currently installed focusing lens. The lens size entered determines the dimensions of the Drawing Canvas's imageable area.

Make a lens selection and then click *OK*.

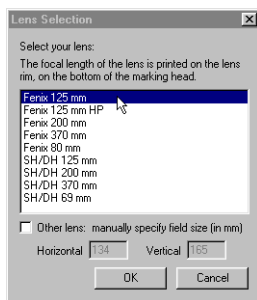


Figure 1-4 Lens Selection dialog box

Changing the lens size

If you replace the focusing lens on your marking head with a lens having a different field size you will need to enter the new lens size so that WinMark Pro properly scales the drawing when marking.

To change lens settings, perform the following steps:

- 1 From the *Tools* menu, select *General Settings*.
- 2 In the *WinMark Settings* dialog box, click the *Application Settings* tab.
- 3 Click *Lens*, and then click the ellipsis (...).
- 4 In the *Lens Selection* dialog box (Figure 1-4), select the lens matching the one currently installed on your Marking Head.

Note: When using the FH Series Marking head, select a lens from the Fenix lens group.

- 5 Open a new drawing to display a Drawing Canvas showing the new field dimensions.

getting started

Starting WinMark Pro

Setting measurement units

You can set WinMark Pro to display all measurements in inches, centimeters, or millimeters.

To change measurement units, perform the following steps:

- 1 From the *Tools* menu, select *General Settings*.
- 2 In the *WinMark Settings* dialog box, click the *Application Settings* tab.
- 3 Click *Show Units Type* (Figure 1-5), and then click the arrow.
- 4 From the drop-down list, select the appropriate measurement units.
- 5 Click *Apply* to apply the change, and then click *OK*.

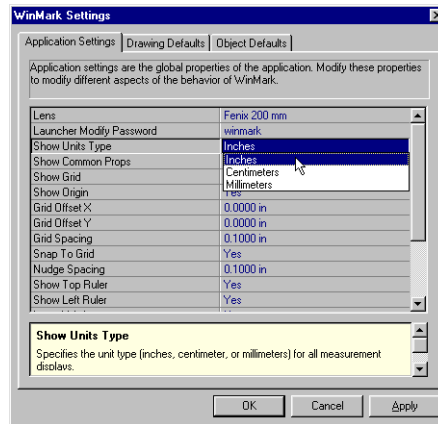


Figure 1-5 Changing “Show Units Type”

getting started

Drawing Editor

Main Window

To aid creation of mark files, the Drawing Editor's Main Window (Figure 1-6) is divided into several distinct areas: the Tool Box, Drawing Canvas, Slide Bar, Object List, Property List, Property Information Window, and Status Bar.

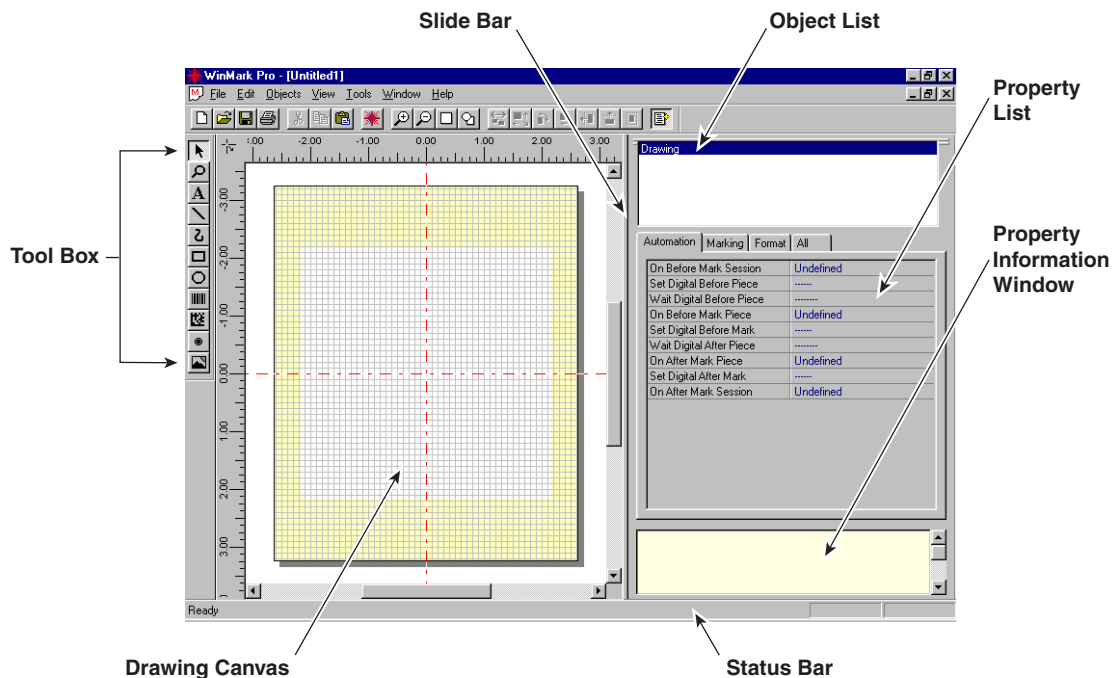


Figure 1-6 WinMark Pro Main Window

getting started

Drawing Editor

Tool Box

Icons in the Tool Box (Figure 1-7) represent the tools you use in WinMark Pro. To select a tool, place the cursor over the tool and click the left mouse button. The cursor changes into the appropriate icon. When drawing with a Line, Freehand, Rectangle, or Circle tool, press and hold the left mouse button while dragging to create the desired size, length, or direction and then release the mouse button.



Figure 1-7 Tool Box

The following tools are available in the Tool Box:



Selection Tool – selects or deselects objects on the Drawing Canvas. Click the left mouse button to select an object. Hold the left mouse button and drag to select multiple objects within the selection area, or hold the CTRL key and left click objects to add them to the selection. Click on a blank section of the drawing to deselect all objects. Click the Selection Tool icon to regain the arrow cursor after using a tool such as the Zoom Tool, which does not default to an arrow cursor.



Zoom Tool – zooms in or out of the Drawing Canvas. After selecting the Zoom Tool, click the left mouse button to zoom in; click the right mouse button to zoom out. The “zoomed” image is centered on the position of the Zoom Tool when you click. To enlarge a specific area, hold the left mouse button and drag to define the zoom area.



Text Tool – places text in the drawing. Click the Text Tool on the Drawing Canvas to set an insertion point and open the *Text Caption Editor* dialog box. After entering text in the dialog box, you can select the text box to modify its position or change text attributes such as font type or size using the Property List.

getting started

Drawing Editor



Line Tool – draws straight point-to-point lines. If Snap to Grid is activated, the line's origin and destination endpoints are snapped to the nearest grid line intersection.



Freehand Tool – draws irregular, freehand lines. If Snap to Grid is activated, any curves drawn are snapped to the nearest grid line and intersection.



Rectangle Tool – draws square or rectangular objects. If Snap to Grid is activated, lines and corners are snapped to the nearest grid line and intersection.



Circle Tool – draws circular objects. If Snap to Grid is activated, the circle's outer diameter is snapped to the nearest gridline.



Bar Code Tool – places a bar code in the drawing. Click the Bar Code Tool then click in the drawing to set an insertion point. Barcode Number is highlighted on the *Format* tab. Type the characters you want converted into bar code form. Modify bar code position or change attributes such as Barcode Style on the *Format* tab.



2D Data Matrix Code Tool – places a 2D Data Matrix code in the drawing. Click the 2D Data Matrix Code Tool then click in the drawing to set an insertion point. 2D Barcode Text is highlighted on the *Format* tab. Type the characters you want converted into Data Matrix form. Modify or change attributes such as 2D Data Matrix Code Inverted on the *Format* tab.



Spot Tool – places spots on the drawing that correspond to the diameter of the laser beam. Spots are useful as guides for aligning the laser beam. If the correct power level and beam duration is specified in the Property List, spots can be used to perforate, or drill, the workpiece.



Image Import Tool – imports graphic image files into the drawing. Click the Image Import Tool to open the *Open* dialog box. Select a file type, click on the file to import, and then click *Open* to place the graphic on the Drawing Canvas.

getting started

Drawing Editor

Drawing Canvas

The Drawing Canvas is the area where graphics and text objects are arranged to create a mark file that can then be transferred to the workpiece. The center white area on the Drawing Canvas, shown in Figure 1-8, is the optimal imageable area for the currently installed lens. The yellow shaded border indicates the maximum marking field of the lens. Objects placed in the shaded area, especially near the corners, may exhibit a slight degradation in mark quality.

Drawing Canvas dimensions correspond to the focusing lens size entered in the *Lens Selection* dialog box. The dotted Origin Lines running across the canvas identify the horizontal and vertical centers of the work area. The intersection of the Origin Lines ($X=0$, $Y=0$) can be used to align parts with the drawing image to be marked.

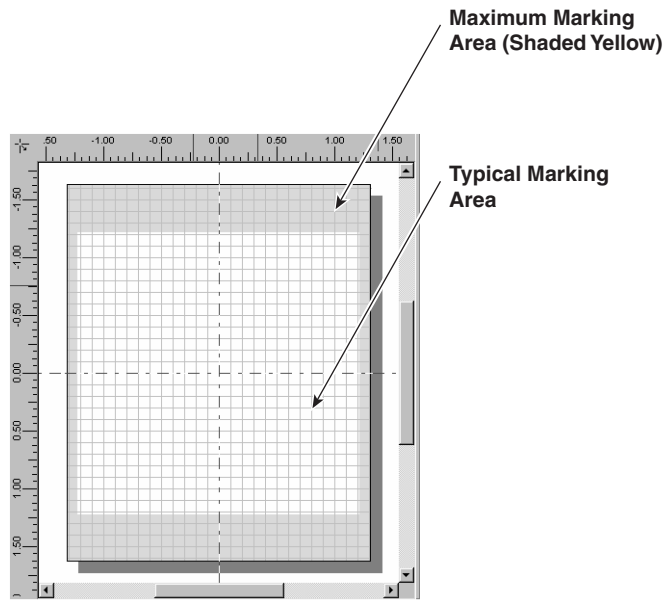


Figure 1-8 Drawing Canvas

getting started

Drawing Editor

Slide Bar

Grab the Slide Bar with the Pointer and pull to the left or right to change the horizontal display area of the Drawing Canvas and Object/Property windows.

Object List

Each object placed on the Drawing Canvas is automatically added to the Object List and is associated with a set of object properties; for example, drawing a single rectangle on the canvas creates an entry in the Object List named *Polyline1*. Each type of object has a specific set of properties that defines some characteristic of that object and objects also share a set of general properties that define their position and how the image transfers to the workpiece. The Drawing Canvas also contains a unique set of object properties and always appears first in the Object List as *Drawing*.

Property List

The Property List consists of five tabs: Special, Automation, Marking, Format, and All that group sets of object properties by function. When an entry on the Object List is selected, the properties that affect that entry appear on the tabs in the Property List window. Those individual properties can then be edited.

Property Information window

When a property is selected from the Property List tab, a description or explanation of that property appears in the Property Information window.

Status Bar

The Status Bar displays information about tools and their current XY position, as well as information about icons on the toolbar.


getting started

Creating a drawing

Opening a new drawing

WinMark Pro creates a new drawing with a blank Drawing Canvas each time it opens. If WinMark Pro is already open, select New from the *File* menu.

Importing a graphic file

- 1 Select the Image Import Tool () or on the *File* menu, click Import. The *Open* dialog box appears, asking you to locate a file for import. For illustration purposes we will import a sample file included with WinMark Pro.

Note: Remember to first load the File Import Filters from disk or download and install them from the WinMark web site.

- 2 In the WinMark folder, double-click the *Samples* folder.
- 3 In the *Samples* folder, double-click the *SampleImports* folder.
- 4 In the *Files of type* drop-down list, select (*.eps) *Encapsulated PostScript*.
- 5 Select the *Synrad.eps* file and click *Open*. The SYNRAD logo appears on the Drawing Canvas (Figure 1-9).

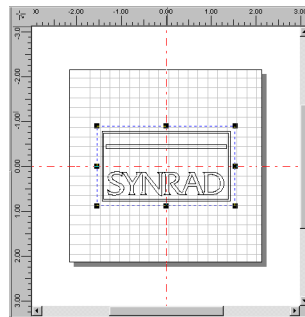


Figure 1-9 Sample imported graphic file

getting started

Creating a drawing

Positioning a graphic

- 1 Use the Selection Tool to click the SYNRAD logo to select it.

Note: When an object is selected, a bounding outline appears around the selected object or objects.

- 2 From the *Objects* menu, click Transformations.
- 3 In the *Object Transformations* dialog box (Figure 1-10), change the *X position* to -1, *Y position* to -1, and *New Width* to 1.

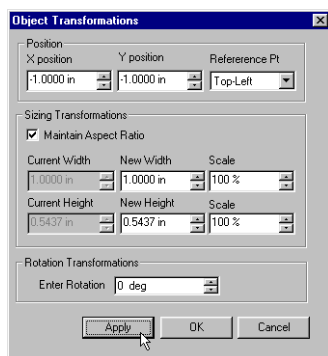


Figure 1-10 Object Transformations dialog box


- 4 Click *Apply*. The size of the logo is now one inch wide but retains the correct height proportion because the *Maintain Aspect Ratio* check box is selected. Also the left edge is one inch to the left of the vertical centerline (*X position* = -1) and its top is one inch above the horizontal centerline (*Y position* = -1).

Experiment with setting different values in the *Object Transformations* dialog box.

getting started

Creating a drawing

Adding text

- 1 Select the Text Tool () from the Tool Box.
- 2 Position the cursor on the Drawing Canvas and click the left mouse button to set an insertion point. The *Text Caption Editor* dialog box appears.
- 3 In the *Text Caption Editor* dialog box (Figure 1-11), type the words: *Sample Text*.

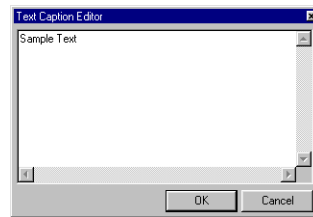




Figure 1-11 Text Caption Editor dialog box

- 4 Click OK. *Sample Text* appears on the canvas within a bounding outline.
Experiment with changing different text parameters such as fonts and sizes on the *Format* tab.

Adding other objects

Rectangles and circles


- 1 Select the Rectangle Tool () or Circle Tool () from the Tool Box.
- 2 Position the cursor on the Drawing Canvas. Click and hold the left mouse button to set a starting point, then drag the mouse to define the object's size and shape.

If an exact dimension is required, set the object's width and height in the *Object Transformations* dialog box.


getting started

Creating a drawing


Bar codes

- 1 Select the Bar Code Tool () from the Tool Box.
- 2 Position the cursor on the Drawing Canvas and click the left mouse button to set an insertion point.
- 3 In the Property List, click the *Format* tab and enter information in the Barcode Number field.
- 4 Select the appropriate Barcode Style.

2D Data Matrix codes

- 1 Select the 2D Data Matrix Code Tool () from the Tool Box.
- 2 Position the cursor on the Drawing Canvas and click the left mouse button to set an insertion point.
- 3 In the Property List, click the *Format* tab and then in the 2D Barcode Text field, click the ellipsis (...).
- 4 Enter data in the *Text Caption Editor* dialog box and click OK.

Spots

- 1 Select the Spot Tool () from the Tool Box.
- 2 Position the cursor on the Drawing Canvas and click the left mouse button to set an insertion point.
- 3 In the Property List, click the *Format* tab and enter a Spot Lase Duration time in milliseconds (ms).

This section has demonstrated just a few of the tools and features available in WinMark's Drawing Editor. The next chapter, "Operation", contains three sections. *Marking parts* steps through the process of laser marking a drawing. *Marking basics* describes how marks are created for different types of text and graphics objects and explains the most important parameters controlling mark speed and quality. *Automation basics* discusses how WinMark Pro's automation features work with automated parts handling equipment.

operation

2

Use information in this section to begin laser marking.

This section contains the following information:

- Marking parts – explains how to mark single pieces or parts in batches.
- Marking basics – explains how font selections and graphics file formats affect mark speed and quality.
- Automation basics – describes the basic procedures in connecting to automated parts handling equipment.

operation

Marking parts

Piece marking

For manufacturing processes that produce parts one at a time, piece marking may be the most appropriate method of marking. The following procedure steps you through a sample parts marking session. This procedure may not meet your particular needs but you can modify it by specifying different parameters.

- 1 Use the Drawing Editor to create a file with text, artwork, or imported graphics to be marked.
- 2 With the object or objects selected, set marking Velocity, Power, and Resolution on the *Marking* tab.
- 3 Position the cursor over a blank area of the Drawing Canvas and click the left mouse button or select *Drawing* in the Object List to deselect all objects.
- 4 In the Property List, click the *Marking* tab, and then click Mark Count. Click the arrow and set the mark count to 1.
- 5 Place the part to be marked under the focusing lens.
- 6 On the toolbar, click the *Mark* button (Figure 2-1).



Figure 2-1 Mark button on the toolbar

Warning

possible
personal
injury

Ensure that all personnel in the area are wearing protective eyewear. Read and follow all safety precautions described in your Marking Head's *Operator's Manual* before beginning laser marking.

operation

Marking parts

- 7 When the Synrad WinMark dialog box appears (Figure 2-2), click *Start-F1*.

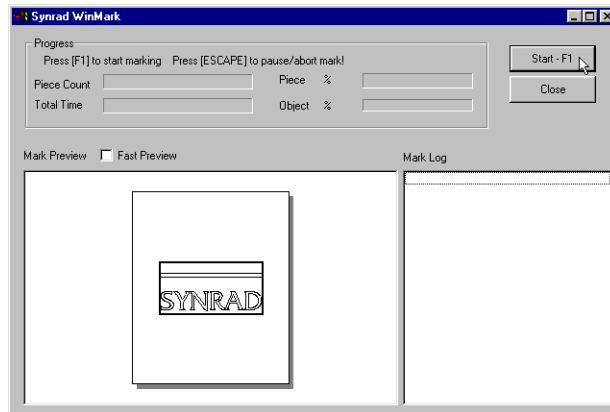


Figure 2-2 Synrad WinMark dialog box

Note: A Fiber Link Controller Card (FLCC) must be installed in your computer and the Hardlock must be connected to your computer's printer port before a laser mark can be made.

operation

Marking parts

Batch marking

If your manufacturing process produces parts in batches, trays of parts for example, batch marking may be the most appropriate method for marking them. The following procedure steps you through a sample batch marking session. You will create an image to be marked then use Array properties to duplicate the object and create an array that matches the group of parts to be marked. This procedure may not meet your particular needs but you can modify it by specifying different parameters.

Note: The group of parts must be arranged so that the arrayed image to be marked fits within the marking field size of the focusing lens.

- 1 Use the Drawing Editor to create a file with text, artwork, or an imported graphic to be marked.
- 2 With the object or objects selected, set marking Velocity, Power, and Resolution on the *Marking* tab.
- 3 In the Property List, click the *Format* tab, and then click Array Columns (Figure 2-3).
- 4 Click the arrow to increase the number of columns.

The number of columns created should match the number of columns of parts to be batch marked.

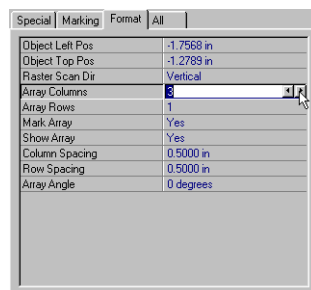


Figure 2-3 Setting number of Array Columns

operation

Marking parts

- 5 In the Property List, click Array Rows (Figure 2-4), and then click the arrow to increase the number of rows.

The number of rows created should match the number of rows of parts to be batch marked.

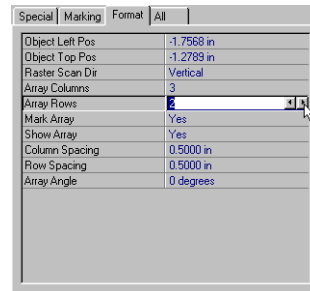


Figure 2-4 Setting number of Array Rows

- 6 From the *Objects* menu, click Center on Field to center the array in the marking field.
- 7 On the *Format* tab, adjust Column Spacing, Row Spacing, and Array Angle as required to position the arrayed image over the batch of parts.
- 8 On the toolbar, click the *Mark* button (Figure 2-5).



Figure 2-5 Mark button on toolbar

Warning

possible
personal
injury

Ensure that all personnel in the area are wearing protective eyewear. Read and follow all safety precautions described in your Marking Head's *Operator's Manual* before beginning laser marking.

operation

Marking parts

- 9 When the Synrad WinMark dialog box appears (Figure 2-6), click *Start-F1*.

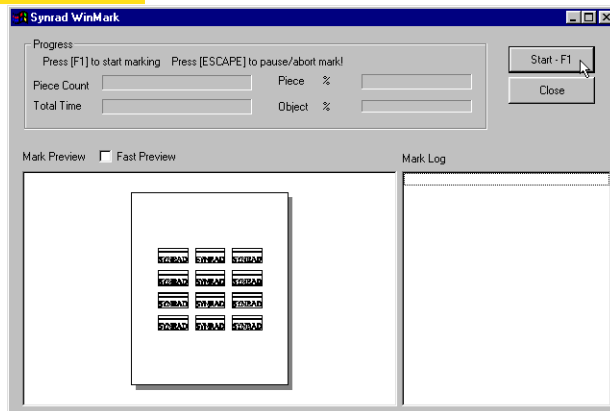


Figure 2-6 Synrad WinMark dialog box

Note: An FLCC must be installed in your computer and the Hardlock must be connected to your computer's printer port before a laser mark can be made.

operation

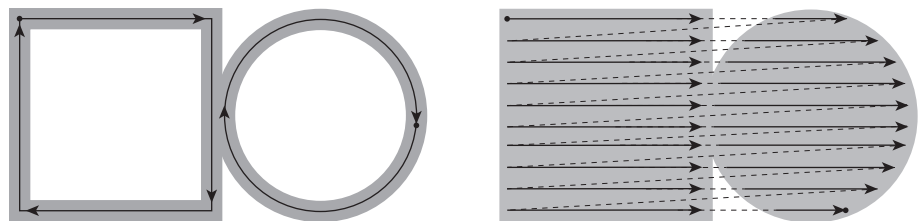
Marking basics

When creating a mark file, your choice of font for text and your choice of file format for imported graphic images will be the primary factors that determine the overall speed and quality of the mark. The following sections lead you through the creation of text and graphic files that illustrate how your choices affect marking. The last section, *Optimization*, provides examples of how to optimize a mark for speed or for quality.

Note: Power settings provided in this section are based on the use of a 25 W laser; when working through the examples, laser power levels should be adjusted accordingly for higher or lower power marking systems.

Types of marks

There are two distinct methods used to mark objects. The first method, vector marking, is made by moving the beam from one x-y point to another x-y point (a vector) along a straight or curved path. This type of mark is very fast, limited only by the speed of the galvanometers moving the beam-steering mirrors. The second method of marking, raster marking, is accomplished by switching the beam on and off as it moves across the image. The beam returns, is moved down one step, and then makes another pass. This rastering continues through the length of the image. If bidirectional rastering is chosen, marking is enabled as the beam moves both directions across the image. In addition you can specify either a horizontal or vertical orientation for rastering. Raster marking is slower than vector marking, but rastering can create filled objects and text or even reproduce photographic images. Figure 2-7 illustrates both types of marking methods.



Vector outline

Raster fill

Figure 2-7 Vector versus raster marking

operation

Marking basics

Text

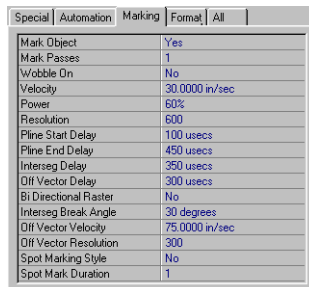
When creating text, there are two categories of fonts to choose from: (1) stroke fonts or (2) TrueType fonts. Stroke fonts are the type of fonts typically used in CAD programs because they are drawn (or marked) very quickly using point-to-point vectors. Several different stroke font styles are built in to WinMark Pro.

Any TrueType font installed on your computer can also be marked. If Text Fill is set to No, the font is marked as a vector outline; if Text Fill is Yes, the font is filled by rastering the beam, effectively “coloring in” the outline.

The section below illustrates the relative marking speeds of stroke and TrueType fonts.

Mark a stroke font:

- 1 Select the Text Tool from the Tool Box, position it on the Drawing Canvas and click the left mouse button to set an insertion point. The *Text Caption Editor* dialog box appears.
- 2 In the *Text Caption Editor* dialog box, type: *ABCDEFGH123*.
- 3 Click OK. *ABCDEFGH123* appears on the canvas within a bounding outline.
- 4 On the *Format* tab, set Font Type to Stroke and then in Stroke Font, select a stroke font to mark.
- 5 Choose a Text Height that will allow the text to easily fit on the Drawing Canvas.
- 6 Click the *Marking* tab (Figure 2-8) and set Velocity to 30.000 in./sec., Power to 60%, and Resolution to 600.



Property	Value
Mark Object	Yes
Mark Passes	1
Wobble On	No
Velocity	30.0000 in/sec
Power	60%
Resolution	600
Pline Start Delay	100 usecs
Pline End Delay	450 usecs
Interseg Delay	350 usecs
Off Vector Delay	300 usecs
Bi Directional Plaster	No
Interseg Break Angle	30 degrees
Off Vector Velocity	75.0000 in/sec
Off Vector Resolution	300
Spot Marking Style	No
Spot Mark Duration	1

Figure 2-8 Marking tab object properties

operation

Marking basics

- 7 Position a sheet of anodized aluminum under the lens, ensure all personnel are wearing safety glasses, and then click the *Mark* button.
- 8 When the *Synrad Marking Progress* dialog box appears, click *Start-F1*.
- 9 Observe how the marking head is producing the mark. After completion of the mark, note the cycle time.
- 10 Save the file as “stroke demo”.

Mark an unfilled TrueType font:

- 1 Open a new drawing.
- 2 Select the Text Tool, position it on the Drawing Canvas and click the left mouse button to set an insertion point.
- 3 In the *Text Caption Editor*, type: *ABCDEFGH123*.
- 4 On the *Format* tab, set Font Type to TrueType and then in TrueType Font, select a font to mark. Set Text Filled to No.
- 5 Set Text Height to the same value used in the stroke font example.
- 6 Click the *Marking* tab and set Velocity to 30.000 in./sec., Power to 60%, and Resolution to 600.
- 7 Position a sheet of anodized aluminum under the lens, ensure all personnel are wearing safety glasses, and then click the *Mark* button.
- 8 When the *Synrad Marking Progress* dialog box appears, click *Start-F1*.
- 9 Observe how the marking head is producing the mark. After completion of the mark, note the cycle time.
- 10 Save the file as “unfilled TrueType demo”.

Mark a filled TrueType font:

- 1 Open a new drawing.
- 2 Select the Text Tool and click to set an insertion point.
- 3 In the *Text Caption Editor*, type: *ABCDEFGH123*.
- 4 On the *Format* tab, set Font Type to TrueType and then in TrueType Font select the same font used in the unfilled font example above.

operation

Marking basics

- 5 Set **Text Filled** to Yes and set **Text Height** to the same value used in the stroke and unfilled font examples.
- 6 Click the *Marking* tab and set **Velocity** to 30.000 in./sec., **Power** to 60%, and **Resolution** to 600.
- 7 Position a sheet of anodized aluminum under the lens, then mark the text.
- 8 Again, observe how the marking head is producing the mark and note the cycle time.
- 9 Save the file as “filled TrueType demo”.

The three text examples just demonstrated show the importance of choosing fonts to match the marking application. In processes where speed is an issue such as in marking part numbers, date codes, or other identifying information at high throughput speeds, stroke (vector) fonts can mark 1.5 times faster than unfilled (vector) TrueType fonts and 10 times faster than filled (raster) TrueType fonts. When using filled TrueType fonts to mark products that are highly visible or that must convey a quality “look” or match a corporate logotype, longer cycle times are inevitable.

Graphics

When creating graphics, there are two basic types of file formats: (1) bitmap or (2) vector graphics. Bitmap (raster files) such as TIFF, BMP, and JPEG are the types of files created by paint programs (EPS and PDF files can also contain bitmap information). Bitmap file elements are marked using the raster scanning technique. Most CAD and illustration programs generate vector file formats such as EPS, DXF, and PDF. Vector file elements are marked quickly using point-to-point vector movements.

Mark a bitmap graphics file:

- 1 Open a new drawing and then click the **File Import Tool**. The *Open* dialog box appears, asking you to locate a file for import. For illustration purposes, we will import a sample file included with WinMark Pro.

Note: Remember to first load the **File Import Filters** from disk or download and install them from the WinMark Pro web site.

- 2 In the *WinMark* folder, double-click the *Samples* folder.
- 3 In the *Samples* folder, double-click the *SampleImports* folder.

operation

Marking basics

- 4 In the *Files of type* drop-down list, select *(*.*tif) Tagged Image File Format*.
- 5 Select the *Family.tif* file and click *Open*. The bitmap file shown in Figure 2-9.

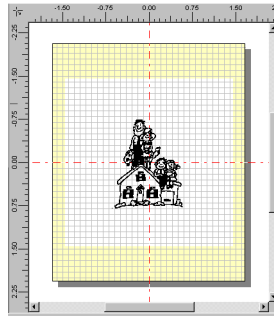


Figure 2-9 Family.tif

- 6 Click on the family image to select it, then use the *Object Transformations* dialog box to scale the image to fit the Drawing Canvas.
- 7 Click the *Marking* tab and set *Velocity* to 15.000 in./sec., *Power* to 60%, and *Resolution* to 600.
- 8 Position a sheet of anodized aluminum under the lens, ensure all personnel are wearing safety glasses, and then click the *Mark* button.
- 9 When the *Synrad Marking Progress* dialog box appears, click *Start-F1*.
- 10 Observe how the marking head is producing the mark. After completion of the mark, note the cycle time.
- 11 Save the file as “bitmap demo”.

Mark a vector graphics file:

- 1 Open a new drawing and then click the *File Import Tool*. The *Open* dialog box appears, asking you to locate a file for import. For illustration purposes, we will import a sample file included with WinMark Pro.
- 2 In the *WinMark* folder, double-click the *Samples* folder.
- 3 In the *Samples* folder, double-click the *SampleImports* folder.

operation

Marking basics

- 4 In the *Files of type* drop-down list, select (*.dxf) *AutoCAD Drawing Interchange*.
- 5 Select the *Columbia.dxf* file and click *Open*. The Columbia file (Figure 2-10) is a vector graphic portraying the space shuttle as a cut-away line drawing.

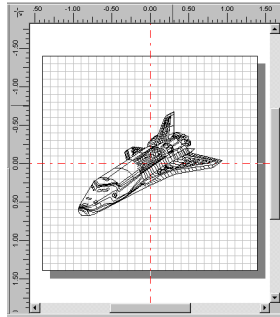


Figure 2-10 Columbia.dxf

- 6 Click on the Columbia image to select it.
- 7 Click the *Marking* tab and set *Velocity* to 15.000 in./sec., *Power* to 60%, and *Resolution* to 600.
- 8 Position a sheet of anodized aluminum under the lens, then mark the drawing.
- 9 Observe how the marking head is producing the mark. After completion of the mark, note the cycle time.
- 10 Save the file as “vector demo”.

Vector graphics are used for marking objects at high throughput speeds when cycle times are important. Bitmap graphics are appropriate when a filled logo or photographic image is being marked and quality is the most important marking factor. You can import both vector and bitmap files into the same drawing to lower cycle times and obtain the best quality mark possible.

Bar codes

- 1 Open a new drawing.
- 2 Select the Bar Code Tool and click to set an insertion point.
- 3 On the *Format* tab, in the Barcode Number field, type: 123456.

operation

Marking basics

- 4 On the *Format* tab, set Barcode Style to Code 3 of 9 - 4, Barcode Resolution to 200, and Barcode Show Text to No.
- 5 If marking a dark material, set Barcode Inverted to Yes.

Most bar codes are marked, or printed, dark on a light background because the bar code must create a sharp color contrast against the material's background for the bar code to be machine-readable. When making a contrasting mark on dark material, setting Barcode Inverted to Yes causes WinMark to mark the spaces between the bars so that a contrasting space between dark bars is created.

- 6 Click the *Marking* tab and set Velocity to 15.000 in./sec., Power to 60%, and Resolution to 600.
- 7 Position a sheet of anodized aluminum under the lens, then mark the bar code.

When marking plastics or ink-coated surfaces, start with Barcode Resolution settings in the range of 200–250. Bar codes on mild and stainless steels mark best at resolutions around 600–650. To decrease marking time, bar code resolution should not be set much higher than the lowest resolution that provides consistently readable results.

2D Data Matrix codes

- 1 Open a new drawing.
- 2 Select the 2D Data Matrix Code Tool and click to set an insertion point.
- 3 On the *Format* tab, in the 2D Barcode Text field, click the ellipsis (...). The *Text Caption Editor* dialog box appears.
- 4 In the *Text Caption Editor* dialog box, type: ABCDEFG123 and click OK.

Note: A 2D Data Matrix code can hold up to 500 characters.

- 5 Set Barcode Inverted to Yes if marking a dark material.
- 6 Click the *Marking* tab and set Velocity to 15.000 in./sec., Power to 60%, and Resolution to 600.
- 7 Position a sheet of anodized aluminum under the lens, then mark the code.

For best results when marking 2D bar codes, start with Resolution settings in the range of 600–750. Use higher resolutions when marking low contrast materials to ensure all information is properly read.

operation

Marking basics

Marking parameters

Once a decision has been made to use a stroke or TrueType font or to use a bitmap or vector graphic, the three most important object properties are: (1) velocity, (2) power, and (3) resolution. These three parameters plus object delays on the *Marking* tab are the primary factors that determine the speed and quality of the mark.

Velocity

Marking velocity (mirror galvanometer speed) determines how fast each microvector is marked. Setting galvanometer velocity too high affects mark quality because delay settings become much more critical as velocity increases. Velocity also affects power since a faster moving beam has less heat effect on the material. Velocity is adjustable between a range of 0.01 to 240 in./sec. (0.25 mm/sec. to 6,096 mm/sec.).

Power

Laser output power must be optimized for the material being processed and for the type of resulting mark required. Power can be set from 0 to 100% of the laser's actual power output. Typically 70 to 80% will equal the laser's specified output power in watts. Applying too much power may engrave too deeply or char the material unacceptably. When marking certain plastics, contrasting marks can be achieved by using very low power settings (1 to 2 watts).

Resolution

Resolution, actually microvectors per inch, is the primary factor in mark speed and mark quality. Increasing resolution increases cycle times but also increases the quality, or "crispness" of the image. Reducing resolution shortens cycle times. Practical resolution settings range from 200 for bar codes to 1000 for high-resolution graphics or filled text.

Delays

It is sometimes possible for the Marking Head's galvanometer hardware to lag slightly behind software commands while marking. To compensate, WinMark Pro provides object-specific delays. Object delays for specific objects are set by selecting the object or objects in an open drawing file and then setting appropriate delays on the *Marking* tab. See *Marking tab object properties* under *WinMark commands* in the "Technical Reference" section for further information.

operation

Marking basics

2

Optimization

Optimize a stroke font for speed

The first step in creating a high-speed mark starts with the computer hardware, since a computer running at a faster clock speed will mark faster than one running at a slower speed. After optimizing computer hardware, software optimization is next. This involves determining acceptable trade-offs in WinMark Pro's Velocity, Power, and Resolution settings for a given drawing. These settings along with object delays are best determined by experimentation.

Because the fastest mark possible is sometimes not legible enough to be practical, an acceptable high-speed mark is determined by each individual application. The example below suggests one approach you might take to adjust WinMark settings for speed:

- 1 Open the *stroke demo.mkh* file created earlier.
- 2 Click on the text to select it.
- 3 Click the *Marking* tab, increase Velocity from 30.000 to 60.000 in./sec. and increase Power from 60% to 75%.
- 4 Position a sheet of anodized aluminum under the lens, ensure personnel are wearing safety glasses, and then make the mark.
- 5 Compare mark quality and cycle time to the initial stroke font mark.

If mark quality is unacceptable after increasing Velocity, try modifying object delays first since delays have less effect on marking speed. If mark quality still suffers after optimizing object delays, try decreasing both Velocity and Resolution. Remember to experiment with only one parameter at a time while comparing results. Open the *vector demo.mkh* graphic file, make similar changes and compare those mark results to the original marks.

operation

Marking basics

Optimize a filled TrueType font for quality

The **level of quality acceptable** for a mark is again a subjective issue. The highest quality mark possible is often not fast enough from a production standpoint. As with speed, creating a quality mark involves trade-offs in velocity, power, resolution, and delay settings and again is best determined by experimentation.

The following example suggests one approach you might take to adjust WinMark Pro settings to obtain the best quality mark:

- 1 Open the *filled TrueType demo.mkh* file created earlier.
- 2 Select the text.
- 3 Click the *Marking* tab and decrease Velocity to 15.000 in./sec., Power to 60%, and increase Resolution to 1000.
- 4 Click the *Format* tab and increase Text Curve Detail to 1000 (the same as the resolution), and set Extra Char Spacing to 0.015 in.
- 5 Position a sheet of anodized aluminum under the lens, then make the mark.
- 6 Compare mark quality and cycle time to the initial filled TrueType font mark.

If mark time is too slow, try reducing Resolution and Text Curve Detail together or try increasing Velocity. Experiment with changing only one parameter at a time while comparing results. Open the *bitmap demo.mkh* graphic file, and make similar changes to Velocity, Power, and Resolution. Compare those mark results to the original bitmap marks.

operation

Automation basics

Wiring connections between parts handling equipment and the marking system are made so they connect to specific I/O bits on the Marking Head or Fiber Link Controller Card (FLCC). The following example assumes that an input signal from parts handling equipment is connected to Input Bit 0, and that an output signal to parts handling equipment is connected to Output Bit 4. Although applications for WinMark Pro vary widely, the following example describes a typical marking operation.

Planning the event sequence

The state diagram below, Figure 2-11, shows the sequence of events that are necessary for coordinating parts handling and marking. Each event is designated with a number that is referenced in the following procedure.

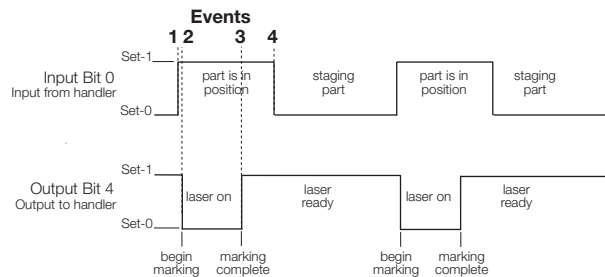


Figure 2-11 Sample state diagram

Event 0 – (not shown on the State Diagram) occurs before a part enters the system.

Event 1 – begins the sequence when a logic 1 value is received from the parts handling equipment, signaling that the next part to be marked is in position. This input triggers Input Bit 0, which will turn the laser on when all other conditions are met.

Event 2 – informs parts handling equipment that lasing is in progress. This event occurs almost immediately after receiving Event 1.

Event 3 – is an output to the parts handling equipment signaling that the laser is off and that another part can be staged. This event occurs during the period of time that the parts handling equipment has allowed for parts marking.

Event 4 – is a signal from the parts handling equipment indicating that a new part is being staged.

operation

Automation basics

Implementing the plan

Event 0

- 1 Select *Drawing* from the Object List.
- 2 Select the *Automation* tab on the Property List.
- 3 Select *Set Digital Before Piece* and click the down arrow.

Set Digital Before Piece sets the digital state of the output prior to executing planned Event 1.

- 4 Click on *Bit 4*, click the down arrow, and then select *Set* from the drop-down list (Figure 2-12).

Selecting *Set* assigns a logic 1 value to *Output Bit 4*. This output signals the parts handling equipment that the laser is off and is ready for a new part to be staged.

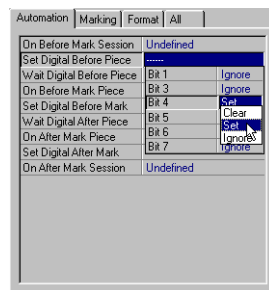


Figure 2-12 Setting “Set Digital Before Piece”

operation

Automation basics

2

Event 1

- 1 Select Wait Digital Before Piece.

Wait Digital Before Piece waits for the designated logic state to occur at the input. When this state is met, plan execution will continue.

- 2 Click *Bit 0*, then select *Set* from the drop-down list (Figure 2-13).

Selecting *Set* assigns a logic 1 value as the anticipated logic state on *Input Bit 0*. When this state is matched, plan execution will continue. In this example, parts handling equipment sets *Bit 0* once a new part is in position to be marked.

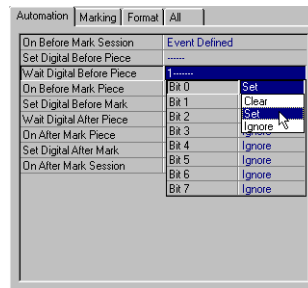


Figure 2-13 Setting “Wait Digital Before Piece”

operation

Automation basics

Event 2

- 1 Select Set Digital Before Mark.

Set Digital Before Mark sets the designated logic state at the output immediately prior to marking.

- 2 Click *Bit 4* then select *Clear* from the drop-down list (Figure 2-14).

Selecting *Clear* assigns a logic 0 value to *Output Bit 4*. The digital state set here is an output, signaling parts handling equipment that the laser is on and marking.

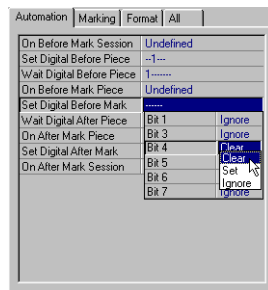


Figure 2-14 Clearing “Set Digital Before Mark”

operation

Automation basics

2

Event 3

- 1 Select Set Digital After Mark.

Set Digital After Mark sets the designated logic state at the output immediately after marking.

- 2 Click *Bit 4* then select *Set* from the drop-down list (Figure 2-15).

Selecting *Set* assigns a logic 1 value to *Output Bit 4*. The logic 1 value set here is an output signaling the parts handling equipment that the laser is off and is ready for another new part to be staged.

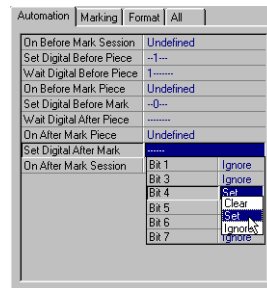


Figure 2-15 Setting “Set Digital After Mark”

operation

Automation basics

Event 4

- 1 Select Wait Digital After Piece.

Wait Digital After Piece waits after marking for the designated logic state to occur at the input. When this state is met, plan execution will continue.

- 2 Click *Bit 0* then select *Clear* from the drop-down list (Figure 2-16).

Selecting *Clear* assigns a logic 0 value as the anticipated logic input state on *Input Bit 0*. When this input state is matched, plan execution will continue. In this example, parts handling equipment clears *Bit 0* to indicate a new part is being staged.

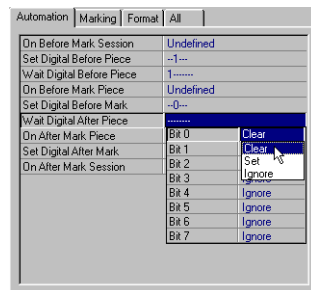


Figure 2-16 Clearing “Wait Digital After Piece”

operation

Automation basics

2

Automation examples

Serial marking

If your manufacturing process produces parts one at a time, serial marking may be the most appropriate method for marking. The following procedure steps you through a sample parts marking session. This procedure may not meet your particular needs but you can modify it by specifying different parameters.

Note: In addition to serializing text, WinMark Pro can also serialize bar codes and 2D Data Matrix codes.

- 1 Select the Text Tool and click to set an insertion point.
- 2 Type 0000 in the *Text Caption Editor* dialog box and then click OK.

The number of characters entered in the *Text Caption Editor* dialog box should equal the maximum number of digits you plan to serialize. In our example, the maximum number of parts serialized would be 9999 before the counter resets.

- 3 Position the cursor over a blank area of the Drawing Canvas and click the left mouse button or select *Drawing* on the Object List to select the drawing object.
- 4 Select the *Marking* tab from the Property List and select Ask Mark Count. Click the down arrow and specify Yes (Figure 2-17).

Setting Ask Mark Count to *Yes* causes the *Piece Count* dialog box to appear, which requires the operator to enter the number of pieces to be marked during the marking session.

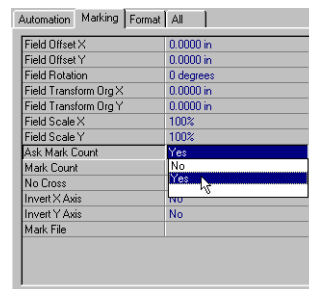


Figure 2-17 Setting “Ask Mark Count” to yes

operation

Automation basics

- 5 Select the *Automation* tab from the Property List and select *On After Mark Piece*. Clicking the ellipsis (...) causes the *Event Builder* dialog box to appear.
- 6 In the *Event Builder* dialog box, click *Add* in the *Commands* frame.
- 7 In the field labeled *1* in the *Commands* frame, click the down arrow and select *IncSerial* from the drop-down list.

Adding *IncSerial* increments (or decrements) alphanumeric characters entered in the text string.

- 8 In the *Target Object and Property* frame select *Text1* from the *Object List* and *TextCaption* from the *Property List*.

The characters in the *TextCaption* of *Text1* are the elements to be serialized.

- 9 Click *Add* in the *Commands* frame again and in field *2* click the down arrow to select *DoPause* from the drop-down list (Figure 2-18). After *DoPause* is selected, click *Delay (msecs)* in the *Command Details* frame to change the pause time period.

Adding *DoPause* allows you to specify a wait period between marking so that a new part can be positioned in the marking field.

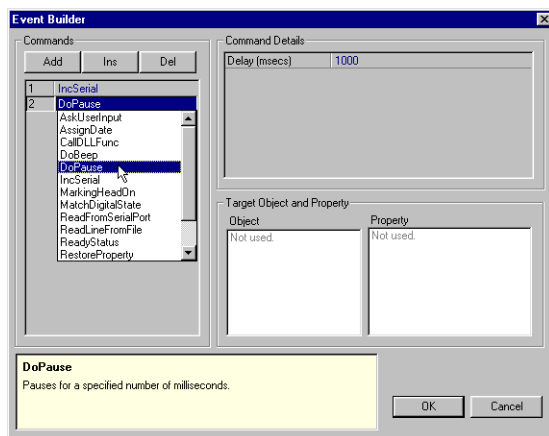


Figure 2-18 Selecting “DoPause” in the Event Builder dialog box

operation

Automation basics



- 10 Click OK to close the *Event Builder* dialog box.
- 11 Click the *Mark* button in the Shortcut bar and then click *Start-F1* when the *Synrad WinMark* dialog box appears.

Warning

possible
personal
injury

Ensure that all personnel in the area are wearing protective eyewear. Read and follow all safety precautions described in your Marking Head's *Operator's Manual* before beginning laser marking.

- 12 When the *Piece Count* dialog box appears (Figure 2-19), enter the number of pieces to be marked.
- If 0 is entered in the *Piece Count* dialog box, unlimited marking occurs until the ESC key is pressed to end the mark session.

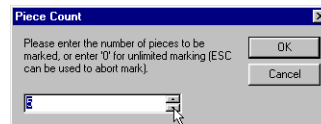


Figure 2-19 Piece Count dialog box

- 13 Ensure that all personnel in the area are wearing protective eyewear before clicking OK to start laser marking.

Note: The Hardlock must be installed on your computer's printer port before a laser mark can be made.

The next chapter, "Technical Reference", contains four sections. *WinMark Pro commands* describes the commands available through WinMark Pro's Drawing Editor. *WinMark Pro object properties* explains object properties and how they are used to control marking. *Event Builder commands* discusses the commands used to integrate laser marking with automated parts handling equipment. *ActiveMark technology* describes WinMark Pro's implementation of ActiveX control.

operation

2

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technical reference

Use information in this section as a reference to WinMark Pro's powerful command and automation controls.

This section contains the following information:

- WinMark Pro commands – explains the commands available from WinMark Pro's menu bar.
- WinMark Pro object properties – describes drawing object properties and how they control object display, automation, and marking.
- Event Builder commands – describes how these predefined commands provide automation functions during the marking process.
- ActiveMark technology – describes WinMark Pro's implementation of ActiveX control.

technical reference

WinMark Pro commands

Commands are available and can be used if they are displayed as normal type on drop-down lists. Commands that appear dimmed are not available until an object selection affecting them is made.

File

File commands (Figure 3-1) perform common file functions such as opening, saving, and printing. In addition, specific functions such as importing graphics files and starting laser marking can be accomplished from WinMark Pro's *File* menu.

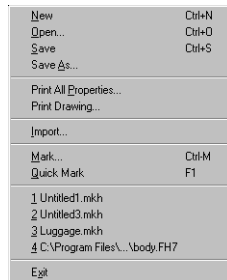


Figure 3-1 File menu

New – open a new, untitled drawing window.

Open... – open the *Open* dialog box. Navigate through your system to find and open existing .mkh mark files.

Save – save changes made to the currently active drawing. When saving an untitled drawing, the *Save As* dialog box appears and prompts you to enter a filename.

Save As... – display the *Save As* dialog box, which prompts you to save the currently active drawing as a .mkh drawing with a new filename or path.

Print All Properties... – print object properties for all objects contained in the active drawing. Use the *Print* dialog box to specify a printer or printer properties.

Print Drawing... – print the active drawing. Use the *Print* dialog box to specify a printer or printer properties.

Import... – imports a graphics file for placement in the currently active drawing.

technical reference

WinMark Pro commands

Note: Any text or filled objects contained within a graphic file will not be imported with the graphic. Filled text can be imported by first converting the text into vector or bitmap artwork. Consult your illustration program's User's Manual for instructions.

Supported file formats include:

.ai – Adobe Illustrator (v4.0) Format	.igs – IGES Drawing Format
.bmp – Windows Bitmap	.jpg – JPEG File Format
.cdr – CorelDRAW! Drawing	.met – OS/2 PM Metafile
.cgm – CGM Graphics Metafile	.mkh – Synrad WinMark PRO Format
.ch3 – Harvard Graphics 3.0 Chart	.nap – NAPLPS Standard ANSI
.cmx – Corel Presentation Exchange 5.0	.pcd – Kodak Photo-CD Format
.ctm – Clear Text CGM	.pct – Macintosh PICT Format
.dib – Microsoft Windows DIB	.pcx – Zsoft PC Paintbrush Bitmap
.drw – Micrografx Drawing	.pdf – Adobe Portable Document Format
.dsf – Micrografx Designer 6.0	.pdi – NAPLPS IBM PC VideoTex
.dwf – AutoDesk WHIP! Drawing Web	.pic – Lotus 1-2-3 Picture File
.dwg – AutoCad Drawing (v12.0) Format	.pic – NAPLPS General Parametrics
.dxf – AutoCad Drawing (v12.0) Interchange	.pif – IBM Picture Interchange
.emf – Enhanced Windows Metafile	.plt – HP Graphics Language
.eps – Encapsulated PostScript File	.png – Gif24 / PNG File Format
.fmv – Frame Vector Metafile	.ps – PostScript Language Format
.gdf – Graphics Data Format	.rnd – AutoShade Rendering
.gem – Digital Research GEM Format	.sy3 – Harvard Graphics 3.0 Symbol
.gif – Graphics Interchange Format	.tif – Tagged-Image File Format
.hgl – HP Graphics Language	.wmf – Microsoft Windows Metafile
.hpg – HP Graphics Language	.wpg – WordPerfect Graphic File

Click Import to open the *Open* dialog box. Navigate through your system to find and open importable files by filename or specific graphics file extension.

technical reference

WinMark Pro commands

Mark... – initiate and preview marking of the currently active drawing through the *Synrad WinMark* dialog box. The dialog box also provides piece count and total elapsed time in addition to a mark log displaying real-time marking status.

Quick Mark – initiate *immediate laser marking without prompting the user*. Pressing the *F1* function key also begins Quick Mark marking of the current drawing.

“recent file” – display the four most recently opened files. Click a filename to open as the current drawing.

Exit – close the WinMark Pro application; a dialog box prompts you to save any unsaved changes. Click the *Cancel* button to cancel the exit request.

technical reference

WinMark Pro commands

3

Edit

Edit commands (Figure 3-2) perform common functions such as copying, pasting, and selecting. An object inserted into a drawing using Paste or Duplicate retains all the properties of the original object, however those properties can be edited individually as required.

<u>U</u> ndo	Ctrl+Z
<u>R</u> edo	Ctrl+Y
<u>C</u> ut	Ctrl+X
<u>C</u> opy	Ctrl+C
<u>P</u> aste	Ctrl+V
<u>D</u> elete	Del
<u>D</u> uplicate	Ctrl+D
<u>S</u> elect All	

Figure 3-2 Edit menu

Undo – undo the last action. The number of undo levels is determined by WinMark Pro’s Undo Depth setting. Your computer’s memory capacity may also affect the maximum number of undo levels available.

Redo – redo the previously undone action.

Cut – cut the selection and save to the Clipboard. Only the last selection cut or copied to the Clipboard is available for use.

Copy – copy the selection to the Clipboard. Only the last selection cut or copied to the Clipboard is available for use.

Paste – paste the current Clipboard contents into the drawing.

Delete – delete the selection without saving to the Clipboard.

Duplicate – duplicate the selection and place into the drawing.

Select All – select all objects in the currently active drawing.

technical reference

WinMark Pro commands

Objects

Objects commands (Figure 3-3) perform common functions such as grouping, aligning, and transforming.

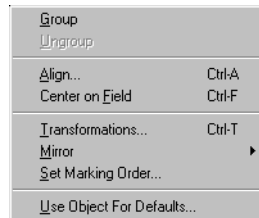


Figure 3-3 Objects menu

Group – group selected objects into a single object. Once grouped, some individual object properties are not displayed; only group properties are displayed and editable.

Ungroup – ungroup a grouped object into its individual component objects. Ungrouped objects display all their previously defined properties.

Align... – align two or more selected objects horizontally or vertically. Horizontal alignments are made from the objects' left, right, or horizontal centerlines. Vertical alignments are made from the objects' top, bottom, or vertical centerlines.

Center on Field – center the selection on the 0, 0 point of the Origin Lines.

Transformations... – resize, scale, rotate, or move the selection.

Mirror – Flip, or mirror, the selection horizontally or vertically.

Set Marking Order... – select the order in which objects on the Drawing Canvas are marked. The *Configure Marking Order* dialog box displays all objects on the current drawing allowing you to move objects up or down in the marking order.

Use Object For Defaults... – set all properties of the selected object as the default for all new objects created in this or future drawings.

technical reference

WinMark Pro commands

3

View

View commands (Figure 3-4) perform common functions such as zooming in or out of the Drawing Canvas, or showing/hiding window elements.



Figure 3-4 View menu

Zoom Extents – maximize the display of all objects on the Drawing Canvas.

Zoom Page – display the entire Drawing Canvas.

Zoom In – zoom in towards the center of the Drawing Canvas by a factor of two.

Zoom Out – zoom out from the center of the Drawing Canvas by a factor of two.

Main Bar – toggle the check mark to show/hide the Main (toolbar) Bar.

Draw Tools – toggle the check mark to show/hide the Tool Box.

Status Bar – toggle the check mark to show/hide the Status Bar.

Properties – toggle the check mark to show/hide the Properties window.

Work Book – toggle the check mark to show/hide *Work Book* tabs. Each tab contains a separate currently open drawing.

technical reference

WinMark Pro commands

Tools

Tools commands (Figure 3-5) perform functions such as customizing global settings and defaults.

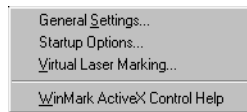


Figure 3-5 Tools menu

General Settings... Application Settings tab - control global properties of WinMark Pro software (Figure 3-6).

Important Note: Application settings do not transfer with a mark file copied to another computer running WinMark Pro software. Transferring a drawing to a faster or slower computer may require adjustment of some application settings or marking properties such as delays.

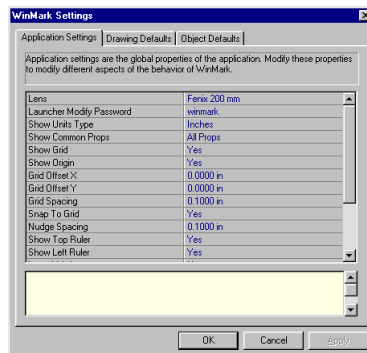


Figure 3-6 Application Settings tab

Lens

Select a lens corresponding to the currently installed focusing lens for your marking system. Click Lens and then click the ellipsis (...) to view the *Lens Selection* dialog box.

Note: When using the FH Head, select a lens from the Fenix lens group.

technical reference

WinMark Pro commands



Launcher Modify Password

Create a password to enable drawing modifications within the WinMark Launcher application. The default password is *winmark*.

Show Units Type

Select inches, millimeters, or centimeters as the display unit for all measurements.

Show Common Props

Display all properties or only common properties when multiple objects are selected on the Drawing Canvas.

Show Grid

Toggle display of the Drawing Canvas grid on or off.

Show Origin

Toggle display of the Drawing Canvas XY origin lines on or off.

Grid Offset X

Offset the drawing grid in the X direction by a specified amount.

Grid Offset Y

Offset the drawing grid in the Y direction by a specified amount.

Grid Spacing

Change spacing between drawing grid lines.

Snap To Grid

Toggle on to restrict object placements, translations, or scaling to grid line intersections.

technical reference

WinMark Pro commands

Nudge Spacing

Specify the distance that selected objects are moved with the arrow keys. If Snap to Grid is On, the distance moved is equal to the Grid Spacing.

Show Top Ruler

Toggle display of the upper drawing ruler on or off.

Show Left Ruler

Toggle display of the left drawing ruler on or off.

Invert X Axis

Invert all marking output along the horizontal (X) axis.

Invert Y Axis

Invert all marking output along the vertical (Y) axis.

DA Card Address

Set the decimal Fiber Link Controller Card (FLCC) address. This number must match the hexadecimal address set by the DIP switches on the FLCC. WinMark Pro's default address is 816 (the FLCC's default hexadecimal address of 330 equals decimal 816).

Disable Marking

Toggle to disable/enable all marking output.

Undo Depth

Set the number of undo levels in WinMark. Computer memory capacity may affect the maximum number of undo levels.

Fenix Keyboard Locked

Lock all membrane keyboard functions (except for the *Emergency Off* pushbutton) on Fenix marking systems.

technical reference

WinMark Pro commands



General Settings... Drawing Defaults tab - set default properties for all new drawings created. Property descriptions can be found in the *Format* tab and *Marking* tab sections.

General Settings... Object Defaults tab - set default properties for all *new objects you create* in current or new drawings. Property descriptions can be found in the *Format* tab and *Marking* tab sections.

Startup Options... – set WinMark to load a specific drawing when started, start marking immediately after loading, or start WinMark Launcher automatically on computer startup.

Virtual Laser Marking... – overlay a high-resolution scanned image of the part to be marked on the current drawing. Use this feature to precisely align the drawing to your part.

WinMark ActiveX Control Help – open a Help window describing how to use WinMark's ActiveX control.

Note: WinMark ActiveX control is not available in WinMark Lite.

technical reference

WinMark Pro commands

Window

Window commands (Figure 3-7) allow you to perform functions such as switching between or arranging multiple drawing windows.



Figure 3-7 Window menu

Cascade – overlap all open drawing windows.

Tile – arrange all open drawing windows side-by-side.

“current active file” – select any open drawing as the currently active drawing.

Help

Help commands (Figure 3-8) display program information.

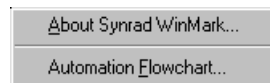


Figure 3-8 Help menu

About Synrad WinMark... – display current version number as well as program, copyright, and support information.

Click the *Head Info* button to see Marking Head information such as type, head type, data transfer size, lens type, and firmware version.

Automation Flowchart... – display a flowchart indicating the proper order of events when using WinMark Pro automation features.

technical reference

WinMark Pro object properties

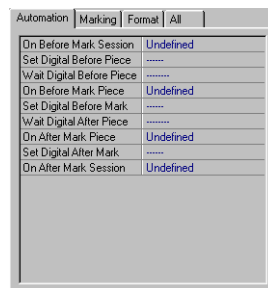
All objects created or imported on the Drawing Canvas have sets of properties associated with them. These properties allow you to define how each specific object is displayed or marked. Select an object on the Drawing Canvas or highlight an object name in the Object List to review or modify its properties. In addition to objects you place on the Drawing Canvas, the drawing object itself (the .mkh marking file) contains properties that allow you to apply global changes to marking output, or communicate with automated parts handling equipment. Click on Drawing in the Object List to select the drawing object.

Object properties are classified by category in the Property List and include *Automation*, *Marking*, *Format*, *Special*, and *All* tabs. Click on the *All* tab to display all properties for the selected object.

Automation tab

Automation tab drawing events

Automation drawing events (Figure 3-9) occur at various stages during the marking process. Certain events allow you to assign predefined Event Builder commands to perform automation functions while other events exert input/output (I/O) control through Marking Head or FLCC input and output bits. WinMark Pro is able to read and respond to the status of individual input bits or write set/clear commands to individual output bits. These events establish interface protocols between WinMark Pro and your parts handling equipment and are specific to each individual drawing.



Automation	Marking	Format	All
On Before Mark Session			Undefined
Set Digital Before Piece		
Wait Digital Before Piece		
On Before Mark Piece			Undefined
Set Digital Before Mark		
Wait Digital After Piece		
On After Mark Piece			Undefined
Set Digital After Mark		
On After Mark Session			Undefined

Figure 3-9 Automation tab drawing events

technical reference

WinMark Pro object properties

On Before Mark Session

Define events you wish to trigger only once prior to the start of all parts marking in the current marking session. Click the ellipsis (...) to open the Event Builder dialog box for a list of definable events. See *Event Builder commands* later in this section for a list of available commands.

Set Digital Before Piece

Set a specific digital state on any or all output bits prior to each piece being marked. For example, your parts handling equipment may require a specific output bit be set or cleared indicating the laser is off before staging a new part.

Wait Digital Before Piece

Set a specific digital state to be read on each input bit before program execution will continue. For example, your parts handling equipment may set or clear a specific input bit to indicate a new part has been properly positioned.

On Before Mark Piece

Define events you wish to trigger once before each piece is marked. Click the ellipsis (...) to open the Event Builder dialog box for a list of definable events. See *Event Builder commands* later in this section for a list of available commands.

Set Digital Before Mark

Set a specific digital state on each output bit immediately before each piece is marked. For example, your parts handling equipment may require a specific output bit be set or cleared indicating the laser is on and marking.

Wait Digital After Piece

Set a specific digital state to be read on each input bit before program execution will continue. For example, your parts handling equipment may set or clear a specific input bit to indicate a new part is being positioned.

technical reference

WinMark Pro object properties



On After Mark Piece

Define events you wish to trigger once after each piece is marked. Click the ellipsis (...) to open the Event Builder dialog box for a list of definable events. See *Event Builder commands* later in this section for a list of available commands.

Set Digital After Mark

Set a specific digital state on each output bit immediately after each piece is marked. For example, your parts handling equipment may require a specific output bit be set or cleared indicating the laser is off before a new part can begin to be staged.

On After Mark Session

Define events you wish to trigger only once after all marking in the current session is complete. Click the ellipsis (...) to open the Event Builder dialog box for a list of definable events. See *Event Builder commands* later in this section for a list of available commands.

Automation tab object properties

Automation object properties (Figure 3-10) apply to objects contained within the drawing. Some properties are common to most objects while other properties apply only to specific types of objects. Properties described below help automate the serialization or coding of parts.

Special	Automation	Marking	Format	All
	Auto Text Type		Serial Number Text	
	Execute Auto Text When		Before Mark	
	Auto Text Within Array		Yes	
	Serial Number Delta		1	
	Serial Number Mask		SSSS	
	Serial Piece Step		1	
	Hexadecimal Count		No	
	Ask Starting Serial		Yes	
	Save Last Serial		Yes	
	Save Serial Name		Slot-0	
	Current Saved Value		text	

Figure 3-10 Automation tab object properties

technical reference

WinMark Pro object properties

Auto Text Type

Select the type of automated text input from sources such as serial numbering, date coding, or text from user entry, a disk file, or serial port. If using serial port input, set your communications port handshake parameters to : 9600 baud, 8 bits, 1 stop bit, No parity, and Flow Control.

Execute Auto Text When

Set the serialization action to occur either before or after the piece is marked.

Auto Text Within Array

Enables the selected serialization action within any array elements you have created.

Serial Number Delta

Set a positive or negative value by which the serial number increments or decrements each time.

Serial Number Mask

Control which serial number characters are held fixed and which characters are incremented or decremented. From the drop-down list, select a placeholder position and then choose *Serialize* or *Fixed*.

Serial Piece Step

Specify the number of pieces to mark before changing the serial number.

Hexadecimal Count

When set to Yes, WinMark Pro increments and marks serial numbers using the hexadecimal (base 16) number system.

Ask Starting Serial

When set to Yes, a dialog box prompts the operator to enter the starting serial number at the beginning of each marking session.

technical reference

WinMark Pro object properties



Save Last Serial

Restore the last serial number marked when the next marking session begins.

Save Serial Name

Create a unique name for storing the “Save Last Serial” number. The actual number is stored in the computer’s System Registry and so is not accessible by programs other than WinMark Pro.

Current Saved Value

Contains the current “Save Last Serial” number value.

Assign Date Format

Click the ellipsis (...) to select or define specific date code formats. The *Date Format Customization* dialog box allows you to select from among American Standard, European Standard, Week-Year, or Julian formats or create up to ten different custom formats. When coding by shift, the *Define Shifts* button allows you to customize shift start and shift end hours.

To create a custom date format:

- 1 In the *Date Format Customization* dialog box select and click a custom *Format Name* (0–9).
- 2 If desired, type a descriptive name in the *Format Name* box.
- 3 Browse the *Available Format Commands* box for available date or time formats.
- 4 Type the format command for the desired date or time format (including the % sign) in the *Format Definition String* box.
- 5 When done, click the *Close* button.

Time Offset: Day

Specify a positive or negative offset from the current day when printing expiration dates.

technical reference

WinMark Pro object properties

Time Offset: Hours

Specify a positive or negative offset from the current hour when printing expiration dates or shift codes.

Time Offset: Minutes

Specify a positive or negative offset from the current minute when printing expiration dates or shift codes.

Text Source Filename

Specify a filename containing the text source to read when using disk file text.

Auto Text File Wrap

If set to Yes, WinMark Pro reads each item in a text file and after the last item, wraps back around to the beginning item. Use Mark Count (on the *Marking* tab) to specify the number of iterations through the file. Because one line of text is read on each pass, each line must end with a carriage return to provide the End Of Line (EOL) delimiter.

Text From Com Port

Specify which communications port contains text information to read.

Com Port Timeout

Set the communications port timeout period in milliseconds (ms). The mark will fail if information is not available at the port within the specified time.

Text User Prompt

Create a customized dialog box prompting the operator to enter user text.

technical reference

WinMark Pro object properties



Marking tab

Marking tab drawing properties

These properties (Figure 3-11) perform global drawing transformations such as positioning or scaling your drawing on the part to be marked. Drawing transformations only affect the actual marking output; Drawing Canvas objects are not affected.

Property	Value
Field Offset X	0.0000 in
Field Offset Y	0.0000 in
Field Rotation	0 degrees
Field Transform Org X	0.0000 in
Field Transform Org Y	0.0000 in
Field Scale X	100%
Field Scale Y	100%
Ask Mark Count	No
Mark Count	1
No Cross	No
Invert X Axis	No
Invert Y Axis	No
Mark File	

Figure 3-11 Marking tab drawing properties

Field Offset X

Enter the amount of drawing offset required in the X-direction when marking.

Field Offset Y

Enter the amount of drawing offset required in the Y-direction when marking.

Field Rotation

Enter the amount of drawing rotation required around the transformation origin when marking.

Field Transform Org X

Specify the transformation X-origin required when offsetting, rotating or scaling a drawing to be marked. The default origin point is X=0.

technical reference

WinMark Pro object properties

Field Transform Orig Y

Specify the **transformation** Y-origin required when offsetting, rotating or scaling a drawing to be marked. The default origin point is Y=0.

Field Scale X

Specify the percentage of X-axis scaling around the transformation origin.

Field Scale Y

Specify the percentage of Y-axis scaling around the transformation origin.

Ask Mark Count

If set to Yes, the *Piece Count* dialog box appears before marking begins prompting the operator to enter the number of pieces to be marked during the marking session.

Mark Count

Specify the number of pieces to be marked during the marking session. If zero is entered, marking will continue until terminated by the ESC key or by event automation. Use WinMark Pro's automation and I/O features to receive signals from parts handling equipment that another piece has been moved into position and is ready to be marked.

No Cross

Enter Yes to prevent the beam from crossing a previous mark. Use this feature to minimize "pits" or hot spots when lines intersect each other.

No Cross Gap

If "No Cross" is set to Yes, enter a No Cross Gap dimension.

Invert X Axis

Invert marking output along the horizontal axis.

technical reference

WinMark Pro object properties



Invert Y Axis

Invert marking output along the vertical axis.

Mark File

Shows the path and filename of the .mkh mark file specified as the current startup file.

Marking tab object properties

These properties (Figure 3-12) apply to objects contained within the drawing and specify how a particular object will be laser marked. Most properties are common to all objects but some properties apply only to specific types of objects.

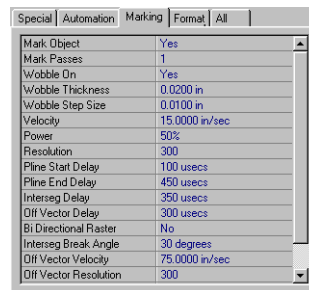


Figure 3-12 Marking tab object properties

Mark Object

Toggle (yes/no) whether or not to mark the selected object.

Mark Passes

Specify the number of passes required to mark the selected object.

Wobble commands

The Wobble commands described below allow you to create thick lines or strokes when marking objects by “wobbling” the laser beam back and forth. Although “Wobble” provides the ability to create wide strokes, there is a significant increase in cycle time.

technical reference

WinMark Pro object properties

Wobble On (polyline, text, and circle objects only)

Toggle (yes/no) to mark thick line strokes by “wobbling” the laser beam.

Wobble Thickness (polyline, text, and circle objects only)

Specify the “Wobble” width of object segments.

Wobble Step Size (polyline, text, and circle objects only)

Enter a specific distance between “Wobble” steps.

Velocity

Specify a galvanometer velocity when marking the selected object.

Power

Enter the percentage of laser power required to mark the selected object. A value of 70–75% usually equals the laser’s specified power rating.

Resolution

Enter the required microvector marking resolution of the selected object in dots per inch (DPI).

technical reference

WinMark Pro object properties



Delay commands

Because galvanometers require a finite amount of time to overcome mirror inertia and then move the mirror into position, it's possible for the galvanometer hardware to lag slightly behind the software commands. Delay commands “fine tune” the marking of each object in your drawing file. If delay related marking problems occur, first start with all *Marking* tab delays set to their default values (see below). Next review the descriptions for Pline Start Delay, Pline End Delay, Interseg Delay, and Off Vector Delay and then make adjustments to the appropriate delays, ensuring that only one delay is adjusted at a time in order to avoid confusion and obtain the best trade-off between marking quality and marking speed.

To check marking delays, perform the following steps:

- 1 Select an object or objects on the Drawing Canvas.
- 2 In the Property List, click the *Marking* tab.
- 3 Scroll down to the delay section shown in Figure 3-13.

Special	Marking	Format	All
Mark Object	Yes		
Mark Passes	1		
Wobble On	No		
Velocity	15.0000 in/sec		
Power	50%		
Resolution	300		
Pline Start Delay	100 usecs		
Pline End Delay	450 usecs		
Interseg Delay	350 usecs		
Off Vector Delay	300 usecs		
Interseg Break Angle	30 degrees		
Off Vector Velocity	75.0000 in/sec		
Off Vector Resolution	300		
Spot Marking Style	No		
Spot Mark Duration	1		

Figure 3-13 Delay settings

- 4 Check that the following initial parameters are set:

Pline Start Delay	100 μ s
Pline End Delay	450 μ s
Interseg Delay	350 μ s
Off Vector Delay	300 μ s
Off Vector Velocity	1905 mm/sec (75.00 in./sec)

technical reference

WinMark Pro object properties

Pline Start Delay

Use **Pline Start Delay** to minimize hot spots at the beginning of a polyline or the beginning of a series of polylines. See Figure 3-14 for illustrations of Pline Start Delay effects. Increase the delay to reduce dwell (hot spots) at the beginning of each polyline. If too large a delay is set, the beginning of a polyline may be shortened or shapes may not close properly. Pline Start Delay affects only the beginning of non-connected polylines.

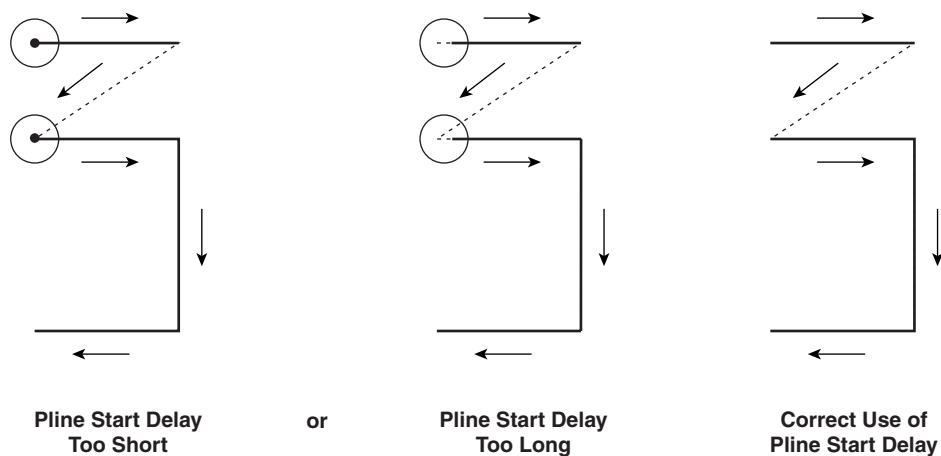


Figure 3-14 Pline Start Delay settings

Note: Setting the Pline Start Delay properly may not entirely eliminate hot spots because of the laser's natural tendency to produce a small initial spike of power when first turned on.

technical reference

WinMark Pro object properties

3

Pline End Delay

Pline End Delay maintains beam output at the end of a series of polylines to ensure that the current polyline is completed before moving to the next polyline vector. See Figure 3-15 for illustrations of Pline End Delay effects. Too much delay will create dwell, or hot spots, at the end of polylines; too little delay may cause short or incomplete polylines to be marked.

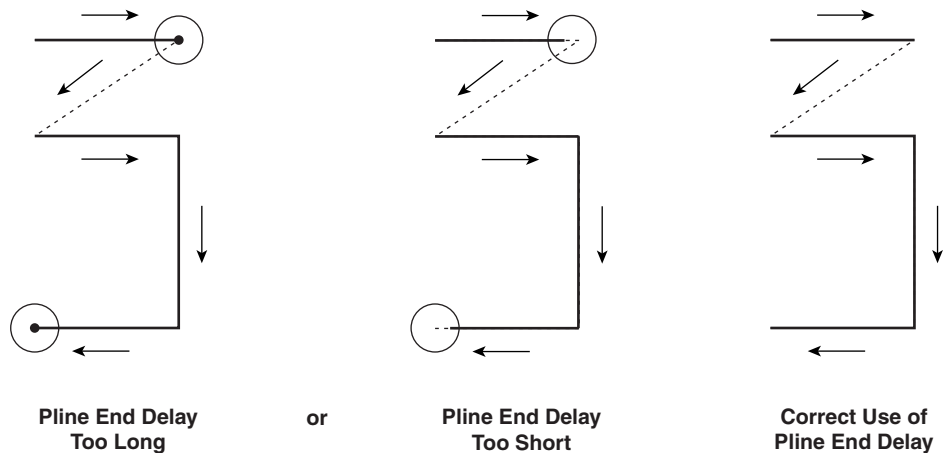


Figure 3-15 Pline End Delay settings

technical reference

WinMark Pro object properties

Interseg Delay

Interseg Delay sets a delay between marking connected polylines where the end point of the current polyline is the start point of the next polyline in the object. Interseg Delay increases the “sharpness” of points where polylines connect. See Figure 3-16 for illustrations of Interseg Delay effects. Too much delay creates dwell, or hot spots, at the end of polylines; too little delay causes corners to be rounded.

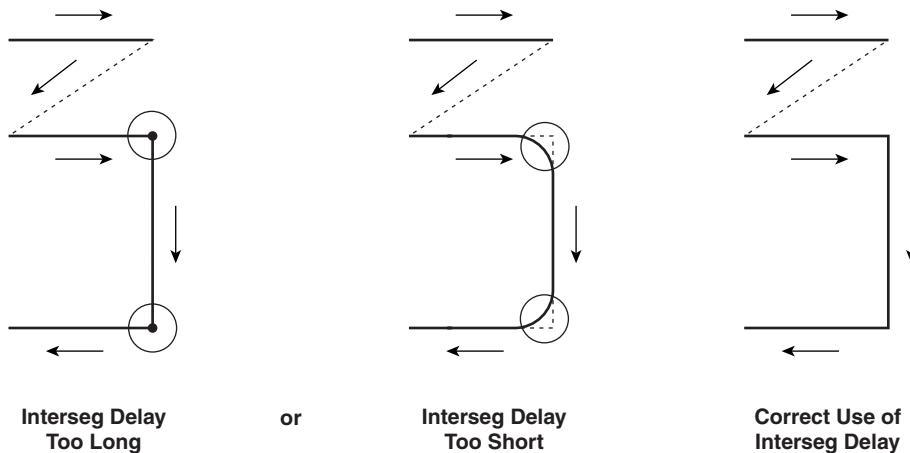


Figure 3-16 Interseg Delay settings

Bi-Directional Raster

Enable bidirectional scanning which can speed up mark time when filling a raster image.

technical reference

WinMark Pro object properties

3

Off Vector Delay

Off Vector Delay sets a proportional delay during all laser off-vector moves to eliminate “tails” when moving between non-connected polylines. See Figure 3-17 for illustrations of Off Vector Delay effects. Too much delay will create a good mark, but marking throughput (cycle time) may be unacceptably slowed; too little delay may cause “tails”, leading marks at the beginning of polylines.

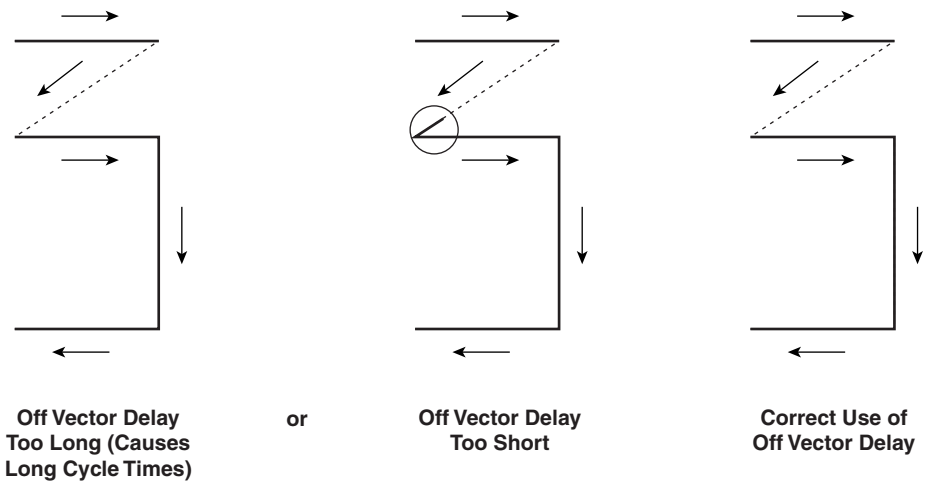


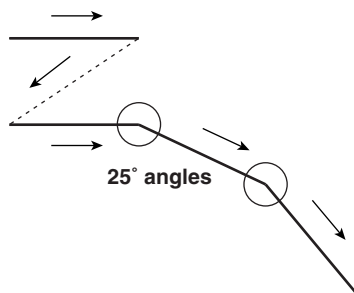
Figure 3-17 Off Vector Delay settings

technical reference

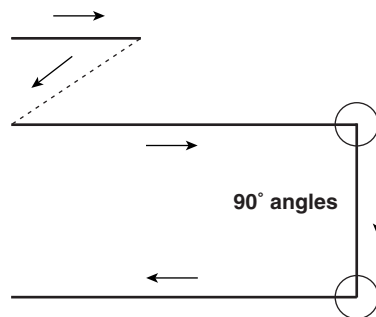
WinMark Pro object properties

Interseg Break Angle

Specifies a break angle between two connected polylines. No Interseg Delay is used when the angle between the two marked polylines is less than the specified angle. If the angle exceeds the Interseg Break Angle, then the Interseg Delay value is used. Figure 3-18 shows the results of marking two different angles using the default Interseg Break Angle of 30 degrees.



Angles are less than the specified Interseg Break Angle. No Interseg Delay is used.



Angles are greater than the specified Interseg Break Angle. Interseg Delay is used to prevent hot spots or rounded corners.

Figure 3-18 Interseg Break Angle settings

Off Vector Velocity

Set a non-marking velocity for galvanometers to travel between polyline endpoints. Generally this number should be set close to the marking Velocity value.

Off Vector Resolution

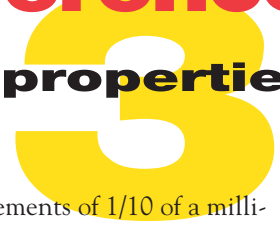
Set a non-marking resolution in dots-per-inch (dpi) when galvanometers travel between polyline endpoints. Generally this number should be set close to the marking Resolution value.

Spot Marking Style

When set to Yes, the mark is made using individual spots instead of a continuous line. Spot spacing is proportional to the Resolution setting. The Spot Marking Style is primarily used when marking glass to prevent fracturing.

technical reference

WinMark Pro object properties



Spot Mark Duration

Set the lasing duration for the Spot Marking Style in increments of 1/10 of a milli-second (0.0001 sec.).

Format tab

Format tab drawing properties

These properties (Figure 3-19) allow you to specify a new field size if the focusing lens on your Marking Head is changed. Every focusing lens provided by SYNRAD has the field size marked on it. See Tables 3-1 and 3-2 for focusing lens information.

Automation	Marking	Format	All
Field Width		3.3465 in	
Field Height		4.1339 in	
Optimal Field Width		2.9134 in	
Optimal Field Height		2.9134 in	

Figure 3-19 Format tab drawing properties

Note: Field sizes are automatically updated when you choose a new lens in the *Lens Selection* dialog box.

Field Width

Maximum field width of the currently specified focusing lens.

Field Height

Maximum field height of the currently specified focusing lens.

technical reference

WinMark Pro object properties

Optimal Field Width

Nominal field width of the currently specified focusing lens.

Optimal Field Height

Nominal field height of the currently specified focusing lens.

Note: Table 3-1 and Table 3-2 lists currently available focusing lenses, nominal (specified) and maximum field sizes for each lens, typical working distance from the lens to the marking surface, and focused spot size.

Table 3-1 FH/Fenix lens information

Lens	Specified Field	Maximum Field	Working Distance Typical ¹	Spot Size 1/e ²
370 mm	198.0 × 198.0 mm	241.0 × 297.0 mm	368 mm	540 μm
200 mm	110.0 × 110.0 mm	134.0 × 165.0 mm	201 mm	290 μm
125 mm	74.0 × 74.0 mm	85.7 × 105.6 mm	128 mm	180 μm
125HP	66.0 × 66.0 mm	80.4 × 99.0 mm	126 mm	180 μm
80 mm	27.0 × 27.0 mm	33.5 × 41.2 mm	81 mm	116 μm

Table 3-2 SH/DH lens information

Lens	Specified Field	Maximum Field	Working Distance Typical ¹	Spot Size 1/e ²
370 mm	200.0 × 200.0 mm	n/a	455 mm	540 μm
200 mm	110.0 × 110.0 mm	n/a	240 mm	290 μm
125 mm	70.0 × 70.0 mm	n/a	148 mm	180 μm
69 mm	38.0 × 38.0 mm	n/a	70 mm	100 μm

¹ The typical working distance is marked on each individual focusing lens. The actual working distance may vary from lens to lens within ±10 mm.

technical reference

WinMark Pro object properties

Format tab object properties

Object properties (Figure 3-20) apply to objects contained within the drawing. These properties set object positions and create object arrays for batch marking of parts.

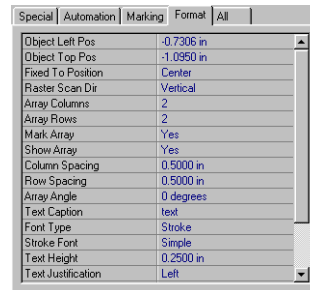


Figure 3-20 Format tab object properties

Object Left Position

Set the left (X-coordinate) position for the selected object's bounding outline.

Object Top Position

Set the top (Y-coordinate) position for the selected object's bounding outline.

Fixed To Position (text, bar code, and 2D Data Matrix code objects only)

Define a fixed point for positioning an object if its size is increased or decreased. One of nine bounding outline handles can be used as an anchor point; the other bounding outline points are free to move as scaling occurs.

Raster Scan Direction

Specify horizontal or vertical raster scanning. One scan direction may mark much faster than the other depending on the orientation of the raster image.

technical reference

WinMark Pro object properties

Array commands

The Array commands described below allow you to batch mark a group of parts. Select an object or objects to be marked as an array element then create an array by specifying rows, columns, and spacing. The batch of parts to be marked must all fit within the marking field of the lens.

Array Columns

Enter the number of element columns in the array.

Array Rows

Enter the number of element rows in the array.

Mark Array

Toggle (yes/no) to mark the array. If No, only the original object, not the array, will mark.

Show Array

Toggle Yes to display the selected array or No to display only a single array element.

Column Spacing

Enter the desired spacing between element columns in the array.

Row Spacing

Enter the desired spacing between element rows in the array.

Array Angle

Enter a baseline angle for rotating the array.

Polyline Filled

Fill the selected polyline object.

technical reference

WinMark Pro object properties



Format tab text properties

Text properties (Figure 3-21) apply to text objects within the drawing. These properties provide typographical control over specific text characteristics.

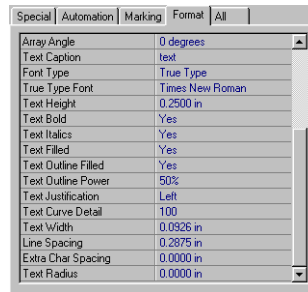


Figure 3-21 Format tab text properties

Text Caption

Contains the currently selected text to be marked. If the text displayed in the Property List is highlighted, typing will replace any current text. To edit, click in the highlighted field to establish an insertion point. Click the ellipsis (...) to enter multiline text in the *Text Caption Editor* dialog box.

Font Type

Select either a TrueType or Stroke font for text. Use stroke fonts to mark quickly for high throughput speeds. Use TrueType fonts to match a logo, maintain a corporate identity, or create a certain “look”.

Stroke Font

Select one of ten Stroke fonts available in WinMark Pro. Fonts available include European, Gothic, LiteCom, Little, Sans Serif, Simple, Trip, Tscr (Trip Script), Complex, and Simplex.

TrueType Font

Select a TrueType font for text. Any TrueType font installed on your computer can be laser marked.

technical reference

WinMark Pro object properties

Text Height

Enter a base character height for text.

Text Bold

Toggle (yes/no) to bold selected text.

Text Italics

Toggle (yes/no) to italic selected text.

Text Filled

Toggle (yes/no) to fill selected text. Selecting Yes causes text characters to be filled. Selecting No simply marks the character's outline.

Text Outline Filled

Toggle (yes/no) to outline the edges of raster-filled TrueType fonts.

Text Outline Power

Set a power level for marking the text outline. Typically the outline power setting will be higher than the setting used for filling text.

Text Justification

Select left, right, or center justification for multiline text objects.

Text Curve Detail

Specify a curve resolution for TrueType fonts. Applying higher values creates smoother curves when marking large text sizes.

Text Width

Enter an average width (horizontal scale) for text characters. Enter zero (0) for the default font width.

technical reference

WinMark Pro object properties



Line Spacing

Enter line spacing (leading) between lines of multiline text. Enter zero (0) for the default line spacing.

Extra Char Spacing

Enter additional spacing (tracking) between text characters. Enter zero (0) for the default character spacing.

Text Radius

Enter a radius for marking text on a curve. Use Text Radius to fit text inside or outside an arc or circle.

Format tab circle properties

Circle properties (Figure 3-22) apply to circle objects within the drawing. These properties give you the ability to create circles or arcs of varying sizes.

Special	Marking	Format	All
Object Left Pos		0.5000 in	
Object Top Pos		-0.9500 in	
Flaster Scan Dir		Vertical	
Array Columns		2	
Array Rows		2	
Mark Array		Yes	
Show Array		Yes	
Column Spacing		0.5000 in	
Row Spacing		0.5000 in	
Array Angle		0 degrees	
Arc Radius		0.2500 in	
Arc Start		0 degrees	
Arc End		360 degrees	
Arc Filled		No	

Figure 3-22 Format tab circle properties

Arc Radius

Enter an exact radius for a circular object.

Arc Start

Use Arc Start to create an arc or semicircular object by specifying a starting angle for the object. Increase degrees to move the starting position of the arc in a clockwise

technical reference

WinMark Pro object properties

direction from the zero point. When Arc Start is used in conjunction with Arc End, the open arc segment can be made to point in any direction.

Arc End

Use Arc End to create an arc or semicircular object by specifying an end angle for the object. Decrease degrees to move the ending position of the arc in a counterclockwise direction from the zero point. When Arc End is used in conjunction with Arc Start, the open arc segment can be made to point in any direction.

Arc Filled

Fill the selected circle.

Format tab bar code properties

Bar code properties (Figure 3-23) apply to bar code objects within the drawing. You can select specific bar code types and customize bar code properties.

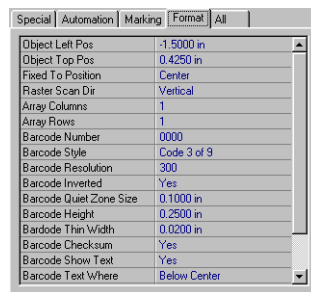


Figure 3-23 Format tab bar code properties

Barcode Number

Enter a single line bar code number.

technical reference

WinMark Pro object properties



Barcode Style

Select from over twenty common bar code types. Supported formats include:

Codabar	HIBC Code 3 of 9
Code 3 of 9 (Code39)	Interleaved 2 of 5
Extended Code 3 of 9 (Code39)	MSI Plessey
Code 93	Portable Data File 417
Extended Code 93	Post Net 5, 9, 11 Digit
Code 128 (all 128 characters)	UCC-128
Code 128 Subset A	UPC-A 11 Digit
Code 128 Subset B	UPC-E 6 Digit, 0 Type Code
Code 128 Subset C	UPC-E 6 Digit, 1 Type Code
Ean/Jan 8 Digit	UPC-E 11 Digit
Ean/Jan 13 Digit	

Barcode Resolution

Define line density for the rasterized bar code. This value is the same as the marking resolution; higher resolution values increase marking time.

Barcode Inverted

Create a contrasting “negative-image” of the bar code. The spaces between the bars are marked instead of the bars themselves. This feature is used when marking dark materials that produce a lighter, contrasting mark.

Barcode Quiet Zone Size

If Barcode Inverted is selected, you can choose to create a dark outline, a quiet zone, before and after the ends of the bar code.

technical reference

WinMark Pro object properties

Barcode Height

Set a specific bar code height.

Barcode Thin Width

Define a line width for the thin bar in the bar code. Horizontal spacing is then proportionally adjusted throughout the bar code.

Barcode Checksum

Toggle (yes/no) to include a Barcode Checksum if applicable for the Barcode Style selected.

Barcode Show Text

Toggle (yes/no) to include human-readable text in the bar code.

Barcode Text Where

Select one of six locations for the placement of human-readable text, if included in the bar code.

Barcode Text Font

Select any TrueType font on your computer system for the human-readable text included in the bar code.

Note: Human-readable bar code text always uses TrueType fonts. To shorten cycle times, set Barcode Show Text to No then create and position a text box. Type in the Barcode Number and specify a stroke font.

Barcode Text Size

Enter a text size for the human-readable text, if included in the bar code.

Barcode Thick to Thin

Select a sizing ratio between the thick and thin bars in the bar code. Preset ratios include 2:1, 2.5:1, and 3:1.

technical reference

WinMark Pro object properties

Format tab 2D Data Matrix code properties

2D Data Matrix code properties (Figure 3-24) apply to 2D Data Matrix code objects within the drawing.

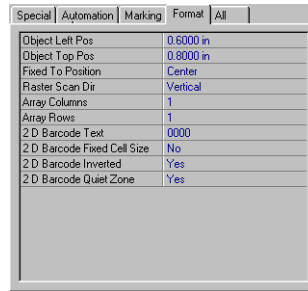


Figure 3-24 Format tab 2D Data Matrix code properties

2D Barcode Text

Enter single or multiline bar code text.

2D Barcode Fixed Cell Size

If 2D Barcode Fixed Cell Size is set to Yes, then the 2D bar code size is based on the number of cells and the cell size specified by 2D Barcode Cell Size. If set to No, then cells are sized to fit the existing bar code size.

2D Barcode Cell Size

Specify the size of each 2D bar code cell.

2D Barcode Inverted

Create a contrasting “negative-image” of the bar code. The spaces between the cells are marked instead of the cells themselves. This feature is used when marking dark materials that produce a lighter, contrasting mark.

technical reference

WinMark Pro object properties

2D Barcode Quiet Zone

If 2D Data Matrix Code Inverted is selected, you can choose to create a dark outline, a quiet zone, around the code.

Format tab spot properties

Spot properties (Figure 3-25) apply to spot objects within the drawing.

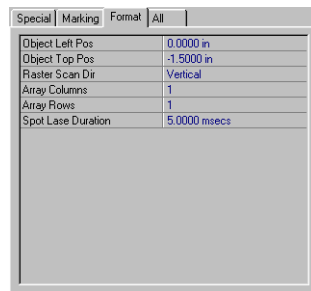


Figure 3-25 Format tab spot properties

Spot Lase Duration

Enter a lasing duration in milliseconds. Spot Lase Duration is useful when marking a spot or drilling a hole.

technical reference

WinMark Pro object properties

Special tab



Special tab object properties

These properties (Figure 3-26) apply to objects contained within the drawing.

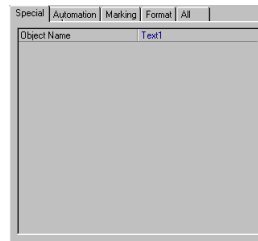


Figure 3-26 Special tab object properties

Object Name

Allows you to enter a specific descriptive name for each object created or imported onto the Drawing Canvas.

All tab

Drawing and object properties

All applicable properties from the Automation, Marking, Format, and Special tabs are automatically included in this section (Figure 3-27).

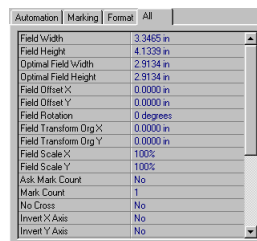


Figure 3-27 All tab properties

technical reference

Event Builder commands

Event Builder commands described below (Figure 3-28) can be called by any of four *Automation* tab Drawing Events (On Before Mark Session, On After Mark Session, On Before Mark Piece, On After Mark Piece) and are used to perform automation functions during the marking process.

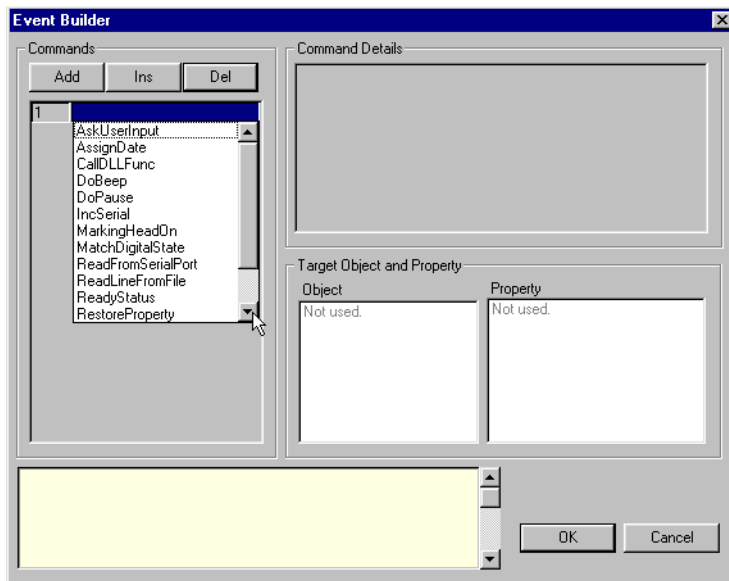


Figure 3-28 Selecting Event Builder commands

AskUserInput

Prompts the operator for keyboard input and assigns the resulting alphanumeric string to the specified target object and property. This keyboard input is often assigned to the Text Caption property.

AssignDate

Allows you to create and assign a predefined or customized date code format to a target object and property. This command string is normally assigned to the Text Caption property.

technical reference

Event Builder commands



CallDLLFunc

Call a custom user-written Dynamic Link Library (DLL) that can be passed a property and user arguments by specifying the DLL Filename, export Function Name, and up to three user arguments.

To activate a DLL from WinMark, an event must be defined in the *Event Builder* via the *Automation* tab for the drawing. The following steps are used to define the event:

- 1 Select the *Automation* tab for the drawing from the Property List.
- 2 Select the marking event to be defined, such as On Before Mark Piece, and click the ellipsis (...).
- 3 In the *Event Builder* dialog box, click *Add* in the *Commands* frame.
- 4 In the field labeled *I* in the *Commands* frame, click the down arrow and select *CallDLLFunc* from the drop-down list.
- 5 In the *Command Details* frame, enter the *DLL Filename*, *DLL export Function Name*, and up to three user arguments.
- 6 In the *Target Object and Property* frame, select a target object and corresponding object property.
- 7 Click OK. When the drawing is marked, the DLL will be activated.

To implement the DLL/WinMark interface, the DLL must use an argument that is a structure with the following members:

```
struct _DLLStruct
{
char    szUserArg1[64];    // argument 1
char    szUserArg2[64];    // argument 2
char    szUserArg3[64];    // argument 3
char    szPropBuffer[128]; // data buffer
WORD    bBufferChanged;    // data change flag (object data
                             has changed in current drawing)

void*    pfnFuncCallback;
void*    pfnCallbackData;
HWND    hwndWinMark;
};
```

The export functions of the DLL must be explicitly defined in the .DEF file (e.g. function1 @1, function2 @2).

technical reference

Event Builder commands

The sample DLL provided in the WinMark\Samples\SampleDll folder reads data from the computer's serial port, inserts a carriage return (CR) and line feed (LF) when a new line character is received, terminates the data input, and initiates the WinMark marking sequence when a "MARK" string is received. The serial data is stored in the *szPropBuffer* buffer and the *bBufferChanged* flag is set to a non-zero value. The flag tells WinMark that the received data should replace the current marking data. The sample DLL takes two arguments: the com port value (e.g. com1) and the serial port timeout value (e.g. 10000 ms).

DoBeep

Generate a beep from the computer's speaker. This command might be used to provide an audible prompt for user input or a signal that marking is complete.

DoPause

Pause program execution for the specified number of milliseconds.

IncSerial

Increment or decrement the numeric characters in a string by the specified delta value. This command is normally assigned to the Text Caption property.

MarkingHeadOn

Specify an output bit pattern to be sent to parts handling equipment when the Marking Head is powered up. Bits labeled IGNORE are not changed.

MatchDigitalState

Read the digital input bits of the Marking Head or the Fiber Link Controller Card (FLCC). The result, 1 if all bits match, 0 if not, is assigned to the target property. The command result is normally passed to "toggle" properties such as Mark Object to include or exclude an object from marking. A timeout value of -1 will force the program to wait until the ESC key aborts marking.

ReadFromSerialPort

Read a line of text from the specified serial port. The value read can be used to dynamically set the value of any target property. Since one line of text is read from the serial

technical reference

Event Builder commands

port each time ReadFromSerialPort is called, you must end the line with a carriage return to provide the End Of Line (EOL) delimiter. Communications port handshake parameters are : 9600 baud, 8 bits, 1 stop bit, No parity, and Flow Control.

ReadLineFromFile

Read a line of text from the specified text file and assigns it to any target property. Since one line of text is read each time ReadLineFromFile is called, you must end the line with a carriage return to provide the End Of Line (EOL) delimiter.

ReadyStatus

Define an output signal to parts handling equipment indicating that the Marking Head did not mark due to a fault. Bits labeled IGNORE are not changed. This command queries Fenix and FH Series Marking Heads for status after completion of a mark and sends the user-defined output signal if the marking head is not ready due to an error.

RestoreProperty

Restore the specified target property's value from a disk file. The disk filename is your Drawing filename with a .dat extension.

SaveProperty

Save the specified target property's value to a disk file. The disk filename is your Drawing filename with a .dat extension.

SetDigitalState

Set individual digital output bits of the Marking Head or Fiber Link Controller Card (FLCC) to the specified values. Bits labeled IGNORE are not changed. Output bit 7 is not available on the FLCC.

WaitDigitalState

Wait for a specific digital state to be read from the Marking Head's or the Fiber Link Controller Card's (FLCC) input bits. Program execution continues if the required state is met before the specified timeout interval, if not, the mark will fail. A timeout value of -1 will force the program to wait until the ESC key aborts marking. WaitDigitalState ignores any input bits labeled as IGNORE.

technical reference

ActiveMark™ technology

Use information in this section to familiarize yourself with WinMark Pro's implementation of ActiveX control.

WinMark ActiveX control

For maximum customization and flexibility, WinMark Pro can be automated by an ActiveX control created from a Windows development tools such as MS Access, MS Visual Basic, MS Visual C++, or Borland Delphi 2.0. Once drawing templates are created in WinMark Pro, you create a custom ActiveX control that would normally perform the following tasks:

- Load one or more WinMark .mkh drawings into the control
- Manipulate drawing objects through property modifications or object transformations
- Synchronize with parts handling equipment
- Initiate parts marking
- Store and mark multiple drawings in the same session.

Sample Visual Basic and C++ programs are provided in the WinMark\Samples\Visual BasicSample and WinMark\Samples\VisualCPlusSample folders respectively.

ActiveX control properties

DrawingIndex

The DrawingIndex property can be used to have multiple drawings stored in one instance of the WinMark ActiveX control. Any number of drawings can be active, limited only by available memory. The default value assigned to this property is 0. Any operations performed on the control are performed on the active drawing. To switch to another drawing, just assign a new number to the DrawingIndex control. Note that the display of the control will not be updated until the Redraw method is called.

technical reference

ActiveMark™ technology



Visual Basic example:

```
Mh.DrawingIndex = 0
Mh.LoadDrawing "test1.mkh"
Mh.DrawingIndex = 1
Mh.LoadDrawing "test2.mkh"
Mh.DrawingIndex = 2
Mh.LoadDrawing "test3.mkh"
Mh.DrawingIndex = 0
Mh.MarkDrawing
Mh.DrawingIndex = 1
Mh.MarkDrawing
Mh.DrawingIndex = 2
Mh.MarkDrawing
```

ProgressCtrlHandle

The HWND ProgressCtrlHandle property can be used to display a progress bar to users during lengthy WinMark Pro operations such as loading, saving, or marking a document. To use this property, create a Progress Bar control on the same form as your WinMark Pro ActiveX control and assign this property the window handle for this control. When you no longer want to display the progress updates, assign 0 to the control.

Visual Basic example:

```
' select active drawing index
mh.DrawingIndex = 0
' assign the progress handle
mh.ProgressCtrlHandle = ctlProgressBar.hWnd
' load the drawing – progress will now be displayed
mh.LoadDrawing "test.mkh"
mh.MarkDrawing
' no more progress displays
mh.ProgressCtrlHandle = 0
```

technical reference

ActiveMark™ technology

ActiveX control methods

Add2DBarcode

The Add2DBarcode control adds a new 2D Data Matrix code object to the current drawing. Object Name is assigned as the object name for the new 2D Data Matrix code. The control is formatted as:

BOOL Add2DBarcode < ObjectName as String, X as Float, Y as Float, Text as String >

Visual Basic example:

```
mh.Add2DBarcode "2DBarcode", 0, 0, "AB241"
```

AddBarcode

The AddBarcode control adds a new bar code object to the current drawing. Object Name is assigned as the object name for the new bar code. The control is formatted as:

BOOL AddBarcode < ObjectName as String, X as Float, Y as Float, Number as String >

Visual Basic example:

```
mh.AddBarcode "Barcode", 0, 0, "12345"
```

AddCircle

The AddCircle control adds a new circle object to the current drawing centered at (x1, y1) with a radius as specified. Object Name is assigned as the object name for the new circle. The object will be created using the current default object properties as specified in the WinMark Pro application. The control is formatted as:

BOOL AddCircle < ObjectName as String, x1 as Float, y1 as Float, radius as Float >

Visual Basic example:

```
' create a new circle centered at (0,0) with a radius of 1  
mh.AddCircle "CircleObject", 0, 0, 1
```

technical reference

ActiveMark™ technology



AddImport

The AddImport control adds a new imported graphic to the drawing. If you are importing file formats other than .dxf, .eps, .bmp, or .igs you must have previously installed the File Import Filters library. Object Name is assigned as the object name for the new imported graphic. The control is formatted as:

BOOL AddImport < strObjectName as String, strFileName as String >

Visual Basic example:

```
mh.AddImport "NewPicture", "c:\pic.bmp"
```

AddLine

The AddLine control adds a new line object to the current drawing using (x1, y1) as the top-left position and (x2, y2) as the bottom right position. Object Name is assigned as the object name for the new line. The object will be created using the current default object properties specified in the WinMark Pro application. The control is formatted as:

BOOL AddLine < ObjectName as String, x1 as Float, y1 as Float, x2 as Float, y2 as Float >

Visual Basic example:

```
'add new line from (-1,-1) to (1,1)
mh.AddLine "LineObject", -1, -1, 1, 1
```

AddPreviewWnd

The AddPreviewWnd control opens the *WinMark ActiveX* dialog box showing the drawing objects to be marked. The control is formatted as:

VOID AddPreviewWnd < pParent as long*, resourceID as long >

Visual Basic example:

```
mh.AddPreviewWnd 10000, 10
```

technical reference

ActiveMark™ technology

AddRect

The AddRect control adds a new rectangle object to the current drawing using (x1, y1) as the top-left position and (x2, y2) as the bottom right position. Object Name is assigned as the object name for the new rectangle. The object will be created using the current default object properties as specified in the WinMark Pro application. The control is formatted as:

BOOL AddRect < ObjectName as String, x1 as Float, y1 as Float, x2 as Float, y2 as Float >

Visual Basic example:

```
'add new rectangle from (-1,-1) to (1,1)
mh.AddRect "RectObject", -1, -1, 1, 1
```

AddSpot

The AddSpot control adds a new laser spot object to the drawing. Object Name is assigned as the object name for the new spot. The control is formatted as:

BOOL AddSpot < ObjectName as String, X as Float, Y as Float >

Visual Basic example:

```
mh.AddSpot "Spot", 0, 0
```

AddText

The AddText control adds a new text object to the current drawing at (x1, y1). Object Name is assigned as the object name for the new text. Text Caption is assigned as the text caption for the new object. The object will be created using the current default object properties as specified in the WinMark application. The control is formatted as:

BOOL AddText < ObjectName as String, x1 As Float, y1 as Float, TextCaption as String >

Visual Basic example:

```
' add a new text object at (0,0)
mh.AddText "TextObject", 0, 0, "Hello World!"
```

technical reference

ActiveMark™ technology



ClearSelection

The ClearSelection control clears the selection set in the current drawing. The control is formatted as:

BOOL ClearSelection < none >

Visual Basic example:

```
mh.ClearSelection  
mh.SelectObject "TextObject"  
mh.ClearSelection
```

ConfigureAbort

The ConfigureAbort control allows you to configure the abort sequence. The ability to abort can be turned on or off with the *bEnabled* parameter. It is strongly recommended that you set this to enabled (TRUE). By default, the ESC key aborts marking, however *iKey* can be set to virtual any key code. When the user aborts marking, a dialog box asks for confirmation. Use the *bShowDialog* parameter to turn this feature on or off. The control is formatted as:

VOID ConfigureAbort < bEnabled as Boolean, X as Float, iKey as Integer, bShowDialog as Boolean >

Visual Basic example:

```
mh.ConfigureAbort 1, VK_ESCAPE, 1
```

DeleteObject

The DeleteObject control deletes a specific object reference by Object Name from the current drawing. The control is formatted as:

BOOL DeleteObject < ObjectName as String >

Visual Basic example:

```
' delete the text object named "text"  
mh.DeleteObject "text"  
DeleteSelection
```

technical reference

ActiveMark™ technology

DeleteSelection

The DeleteSelection control deletes all objects in the current selection set from the current drawing. The control is formatted as:

BOOL DeleteSelection < none >

Visual Basic example:

```
' deletes all objects in the current drawing
mh.SelectAll
mh.DeleteSelection
```

EraseDrawing

The EraseDrawing control removes all objects in the current drawing. The control is formatted as:

BOOL EraseDrawing < none >

Visual Basic example:

```
mh.AddRect "rect",0,0,1,1
mh.AddRect "rect2", -1, -1, 0, 0
mh.EraseDrawing
```

GetBoolProp

The GetBoolProp control gets a Boolean property from the current drawing. The control is formatted as:

BOOL GetBoolProp < ObjectName as String, PropertyName as String >

Visual Basic example:

```
Dim flag as Boolean
flag = mh.GetBoolProp "TextObject", "MarkObject"
```


technical reference

ActiveMark™ technology



GetDigitalBit

The GetDigitalBit control retrieves the digital state of one of the input lines connected to the Marking Head or FLCC. You can use these digital signals to handshake with external hardware. The control is formatted as:

BOOL GetDigitalBit < nBit as Integer >

Visual Basic example:

```
' get state of Bit 0  
mh.GetDigitalBit 0  
' get state of Bit 1  
mh.GetDigitalBit 1
```

GetFloatProp

The GetFloatProp control gets a float property value from the current drawing. The control is formatted as:

FLOAT GetFloatProp < ObjectName as String, PropertyName as String >

Visual Basic example:

```
Dim value as single  
value = mh.GetFloatProp "TextObject", "ObjectLeftPos"
```

GetIntProp

The GetIntProp control gets an integer property value from the current drawing. The control is formatted as:

INTEGER GetIntProp < ObjectName as String, PropertyName as String >

Visual Basic example:

```
Dim value as Integer  
value = mh.GetIntProp "TextObject", "Resolution"
```

technical reference

ActiveMark™ technology

GetObjectBounds

The `GetObjectBounds` control returns the bounding rectangle for an object. The control is formatted as:

```
BOOL GetObjectBounds < ObjectIndex as Integer, Left ByRef Float, Top  
ByRef Float, Width ByRef Float, Height ByRef  
Float >
```

Visual Basic example:

```
Dim x as single  
Dim y as single  
Dim w as single  
Dim h as single  
mh.GetObjectBounds 0,x,y,w,h
```

GetObjectCount

The `GetObjectCount` control returns the object count for the currently active drawing. The control is formatted as:

```
SHORT GetObjectCount < none >
```

Visual Basic example:

```
Dim n as Integer  
n = mh.GetObjectCount
```

GetObjectIndex

The `GetObjectIndex` control returns the index number of an object in the drawing. The control is formatted as:

```
INTEGER GetObjectIndex < ObjectName as String>
```

Visual Basic example:

```
mh.EraseDrawing  
mh.AddRect "rect", 0, 0, 1, 1  
Dim nObject as Integer  
nObject = mh.GetObjectIndex "rect"
```

technical reference

ActiveMark™ technology



GetObjectName

The GetObjectName control returns the name of an object by index number. The control is formatted as:

STRING GetObjectName < ObjectIndex as Integer >

GetObjectPos

The GetObjectPos control returns a position for an object in the drawing. You can select the bounding outline position to be referenced from one of the following: 0–top left, 1–top right, 2–bottom right, 3–bottom left, 4–center. The control is formatted as:

BOOL GetObjectPos < ObjectIndex as Integer, Position as Integer, x ByRef Float, y ByRef Float>

Visual Basic example:

```
Dim x as single
Dim y as single
' get top left
mh.GetObjectPos 0, 0, x, y
' get center
mh.GetObjectPos 0, 4, x, y
```

GetType

The GetType control returns the specific object type for a particular object. Return values are: Unknown–0, Group–1, Text–2, Polyline–3, Raster Bitmap–4, Vector Import–5, Arc–6, Bar Code–7, Spot–8. The control is formatted as:

SHORT GetType < ObjectIndex as Integer >

technical reference

ActiveMark™ technology

GetSelectionBounds

The `GetSelectionBounds` control returns the bounding rectangle for the current selection set. The control is formatted as:

BOOL GetSelectionBounds < Left ByRef Float, Top ByRef Float, Width ByRef Float, Height ByRef Float >

Visual Basic example:

```
Dim x as single
Dim y as single
Dim w as single
Dim h as single
mh.SelectObject "rect"
mh.GetSelectionBounds x,y,w,h
```

GetStringProp

The `GetStringProp` control gets a string property value from the current drawing. The control is formatted as:

STRING GetStringProp < ObjectName as String, PropertyName as String >

Visual Basic example:

```
Dim value as String
value = mh.GetStringProp "TextObject", "TextCaption"
```

technical reference

ActiveMark™ technology



LoadDrawing

The LoadDrawing control loads the specified WinMark Pro drawing into the control. The drawing will not be displayed until the Redraw method is called. If the ProgressCtrlHandle was set to a progress bar, then the progress will be indicated as the load proceeds. The control is formatted as:

BOOL LoadDrawing < Filename as String >

Visual Basic example:

```
mh.DrawingIndex = 0
mh.ProgressCtrlHandle = ctlProgressBar.hWnd
mh.LoadDrawing "hello.mkh"
mh.Redraw
mh.SaveDrawing "hellosave.mkh"
```

MarkDrawing

The MarkDrawing control laser marks the current drawing. If the ProgressCtrlHandle was set to a progress bar, then the progress will be indicated as the mark proceeds. The control is formatted as:

BOOL MarkDrawing < no arguments >

Visual Basic example:

```
' select the active drawing
mh.DrawingIndex = 0
' enable the progress bar
mh.ProgressCtrlHandle = ctlProgressBar.hWnd
' load the drawing
mh.LoadDrawing "hello.mkh"
' mark the drawing
mh.MarkDrawing
```

technical reference

ActiveMark™ technology

MirrorSelection

The MirrorSelection control mirrors all objects in the current selection set along the x or y-axis. The objects are mirrored about the center point of the current selection set. The control is formatted as:

BOOL MirrorSelection < FlipX as Boolean, FlipY as Boolean >

Visual Basic example:

```
'select all objects in the current drawing and mirror them across the X-  
axis  
mh.SelectAll  
mh.MirrorSelection True, False
```

MoveSelectionTo

The MoveSelectionTo control moves all objects in the current selection set to the specified (x, y) location. The top left position of the object is moved to the location. The control is formatted as:

BOOL MoveSelectionTo < xPos as Float, yPos as Float >

Visual Basic example:

```
' select all objects in the current drawing and move them to (-1,-1)  
mh.SelectAll  
mh.MoveSelectionTo 1,1
```

Redraw

The Redraw control redraws the Drawing Canvas to reflect any changes made to the active drawing via ActiveX control. The control is formatted as:

VOID Redraw < none>

Visual Basic example:

```
' select all objects in the current drawing and rotates them by 45 degrees  
and redraws the drawing  
mh.SelectAll  
mh.RotateSelection 45  
mh.Redraw
```

technical reference

ActiveMark™ technology



RotateSelection

The RotateSelection control rotates all objects in the current selection set by the specified angle. Positive angles are rotated clockwise while negative angles are rotated counterclockwise. The center of rotation is the center point of the current selection set. The control is formatted as:

BOOL RotateSelection < Angle as Integer >

Visual Basic example:

```
' select all objects in the current drawing and rotates them by 45 degrees
mh.SelectAll
mh.RotateSelection 45
```

SaveDrawing

The SaveDrawing control saves the current drawing. If the ProgressCtrlHandle was set to a progress bar, then the progress will be indicated as the mark proceeds. The control is formatted as:

BOOL SaveDrawing < Filename as String >

Visual Basic example:

```
' select the active drawing
mh.DrawingIndex = 0
' enable the progress bar
mh.ProgressCtrlHandle = ctlProgressBar.hWnd
' load the drawing
mh.LoadDrawing "hello.mkh"
' save a new drawing
mh.SaveDrawing "hellosave.mkh"
```

technical reference

ActiveMark™ technology

SelectAll

The **SelectAll** control selects all objects in the current drawing into the selection set. Each drawing has a current selection set that can be used to modify one or more objects. The control is formatted as:

BOOL SelectAll < none >

Visual Basic example:

```
' activate a specific drawing
mh.DrawingIndex = 0
' select all objects in the current drawing
mh.SelectAll
' rotate the current selection set
mh.RotateSelection 45
```

SelectObjectIndex

The **SelectObjectIndex** control selects an object by index number. The control is formatted as:

BOOL SelectObjectIndex < ObjectIndex as Integer >

Visual Basic example:

```
mh.EraseDrawing
mh.AddRect "rect", 0,0, 1, 1
mh.SelectObjectIndex 0
```

SelectObject

The **SelectObject** control selects an object by its name in the current drawing. The control is formatted as:

BOOL SelectObject < ObjectName as String >

Visual Basic example:

```
' select the TextObject into the selection set
mh.ClearSelection
mh.SelectObject "TextObject"
mh.RotateSelection 45
```


technical reference

ActiveMark™ technology



SetBoolProp

The SetBoolProp control assigns a Boolean value (1 or 0) to a specific property of an object in the current drawing. ObjectName must reference a valid object in the current drawing, and PropName must be an available property on that object. SetStringProp can be used to assign values to any valid property, including those that require Float, Integer, or String values. The Boolean value will be converted to the appropriate type in these cases. The control is formatted as:

BOOL SetBoolProp < ObjectName as String, PropName as String, Value as Boolean >

Visual Basic example:

```
' enable bolding of TextObject  
mh.SetBoolProp "TextObject", "TextBold", 1  
' enable raster fill of TextObject  
mh.SetBoolProp "TextObject", "TextFilled", 1  
' disable italics of TextObject  
mh.SetBoolProp "TextObject", "TextItalics", 0
```

SetDigitalBit

The SetDigitalBit control sets a digital output bit on an output connected to the Marking Head or FLCC. You can use these digital signals to control external hardware or parts handling equipment. The control is formatted as:

VOID SetDigitalBit < nBit as Integer, BOOL bValue >

Visual Basic example:

```
' set bit 0  
mh.SetDigitalBit 0, True  
' clear bit 1  
mh.SetDigitalBit 1, False
```

technical reference

ActiveMark™ technology

SetFloatProp

The `SetFloatProp` control assigns a float value to a specific property of an object in the current drawing. `ObjectName` must reference a valid object in the current drawing, and `PropName` must be an available property on that object. `SetStringProp` can be used to assign values to any valid property, including those that require Integer, Boolean, or String values. The integer value will be converted to the appropriate type in these cases. The control is formatted as:

BOOL SetFloatValue < **ObjectName as String, PropName as String, Value as Float** >

Visual Basic example:

```
' move object to 1.0, 1.0
mh.SetFloatProp "TextObject", "ObjectLeftPos", 1.0
mh.SetFloatProp "TextObject", "ObjectTopPos", 1.0
' set font height to 0.25 inches
mh.SetFloatProp "TextObject", "TextHeight", 0.25
```

SetIntProp

The `SetIntProp` control assigns an integer value to a specific property of an object in the current drawing. `ObjectName` must reference a valid object in the current drawing, and `PropName` must be an available property on that object. `SetStringProp` can be used to assign values to any valid property, including those that require Float, Boolean, or String values. The integer value will be converted to the appropriate type in these cases. The control is formatted as:

BOOL SetIntProp < **ObjectName as String, PropName as String, Value as Integer** >

Visual Basic example:

```
' have marking output rotated by 45 degrees
mh.SetIntProp "Drawing", "FieldRotation", 45
' set 300 DPI resolution for text object
mh.SetIntProp "TextObject", "Resolution", 300
' set 2 mark passes on text object
mh.SetIntProp "TextObject", "MarkPasses", 2
```

technical reference

ActiveMark™ technology



SetStringProp

The SetStringProp control assigns a string value to a specific property of an object in the current drawing. ObjectName must reference a valid object in the current drawing, and PropName must be an available property on that object. SetStringProp can be used to assign values to any valid property, including those that require Float, Integer, or Boolean values. The string value will be converted to the appropriate type in these cases. The control is formatted as:

BOOL SetStringProp < ObjectName as String, PropName as String, Value as String >

Visual Basic example:

```
' set the text caption  
mh.SetStringProp "TextObject", "TextCaption", "Hello World!"  
' set the text true type font  
mh.SetStringProp "TextObject", "TrueTypeFont", "Times New Roman"
```

TranslateSelection

The TranslateSelection control offsets the objects in the current selection set by specifying X offset and Y offset values. The control is formatted as:

BOOL TranslateSelection < xOffset as Float, yOffset as Float >

Visual Basic example:

```
' select all objects in the current drawing and offset them by (-1,-1)  
mh.SelectAll  
mh.TranslateSelection -1,-1
```

technical reference

ActiveMark™ technology

WritePropListToTextFile

The `WritePropListToTextFile` control writes the properties of the object specified by `strObjectName` into the file specified by `strFileName`. The properties of the drawing can be written out by using “drawing” for the `strObjectName` parameter. If the file already exists, data is appended to the end of the file; the file is created if it does not exist. The function returns the number of properties that were written to the file. The control is formatted as:

LONG `WritePropListToTextFile` < `strFileName` as String, `strObjectName` as String >

Visual Basic example:

```
mh.WritePropListToTextFile "c:\temp.txt", "line0"
```

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