I-MARK

Operational Guide: Control & Marking Software

Abstract

Congratulations on your purchase of an I-Mark Machine, this software is industry leading, helping you make your mark today with tomorrow's technology.

In one of the toughest years of the world's economy, CMT Leaders made a massive decision to invest heavily in product development in a down economy. They asked themselves to design a DREAM LINE product, something more unique and better than the dot peen and scribe systems. If they could sell anything, what would it be? As the downward economy took its toll, they made the bold move to continue investing in 2009. Then, in January of 2010, came the great payoff: the I-Mark software, controller, and machines became a new brand name for CMT. Following the Blue Ocean Strategy Columbia was founded on, they pushed forward to once again become industry-leading in both software and hardware—as marking became more accessible in terms of speed, ease of use, and connectivity—that no other competitors had at the time. Most importantly, it came at industry-low prices and was 100% made in the USA!

I-Mark software is a layout creation and editing platform used to design marking programs for all I-Mark dot-peen and scribe marking systems. This document provides an overview of the core features, operating workflows, and essential processes required to develop and manage marking layouts within the software environment. Practical application examples are included to illustrate real-world implementation, along with key considerations for achieving effective product identification and traceability. The objective of this manual is to equip prospective and current users with a clear understanding of I-Mark software capabilities, enabling informed planning, efficient deployment, and successful integration into industrial marking operations.

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Contact CMT

Website: http://marking-machines.net

Telephone: +1 (586) 949-8400

E-Mail:

Quotes for spare parts: quotes@columbiamt.com

Service Request: service@columbiamt.com

If your machine is under warranty free support will be provided, or a service ticket will be quoted.

Quick links included below.

RMA – Return Material Authorization is required for returning product for repair.

Support Request – The easy online form is used to request remote support. If your machine is under warranty this is free.

Registration – Register your product to get periodic support updates, and unlimited licensing on the software.

Introduction

Purpose of This Manual

This manual provides instructions for the installation, configuration, and operation of the I-Mark Software when used with Columbia Marking Tools marking systems.

The purpose of this document is to guide trained operators, technicians, and system integrators in the proper use of the software and its associated marking equipment.

This manual describes software functions, system configuration, layout creation, and marking operation. It does not replace required safety training or company operating procedures.

Product Overview

I-Mark Software is the control platform used to create, edit, and execute marking layouts on compatible Columbia Marking Tools systems. The software enables users to design marking data and transmit that data directly to the connected marking machine.

The layout window represents the exact data that will be marked on the material. Any text, geometry, or entities placed within the layout will be reproduced by the marking system according to the selected machine configuration and preset parameters.

This manual uses the M-Series platform as the primary example. Functionality may vary slightly depending on machine configuration. The I-Mark software is also used with the I-Mark I-Series and C-series.

Intended Users

- Trained machine operators
- Maintenance technicians
- Manufacturing engineers
- System integrators

Note: Only qualified personnel should install, configure, or operate marking equipment.

Safety Notice

Marking systems may include moving mechanical components, electrical systems, and depending on configuration, dot-peen or scribe marking technology.

Improper operation may result in equipment damage or personal injury.

Operators are responsible for:

- Following all facility safety protocols
- Using appropriate personal protective equipment (PPE)
- Ensuring guards and safety devices are properly installed and functional
- Receiving proper training prior to operation

Refer to the Safety section of this manual before operating the system.

Revision Information

This manual applies to the current release of I-Mark Software (2.4.1.8186) at the time of publication. Software updates may introduce changes not reflected in this document.

I-Mark Requirements

What is I-Mark?

I-Mark is a professional software package designed by Columbia Marking Tools used to interface with programmable industrial marking systems. This product is used to create marking layouts, manage networked machines, perform simple maintenance and control any marking system in Real-Time.

System Requirements

I-Mark has been designed to work with Windows operating systems of 32 or 64 bit.

Minimum

- Pentium® class CPU – 1 Ghz minimum
- 65536 color video card - 1024x768
- 512 Mb RAM
- Microsoft Windows® 2000 or later (works under Windows ME with limited performances).
- 10/100 T-Base Network Card

Recommended

- Pentium® class CPU - 1.6 Ghz or more
- True Color Video Card (24 or 32 bits – 16.8 M colors) - 1280x1024
- 1GB RAM

Windows Requirements

- NET Framework 4.0 minimum
- Visual C++ 8.0 or greater
- Windows 32- or 64-bit operating systems

Windows Updates

- Windows updates may cause software communication issues
- If problems occur after an update:
    - **Reinstall I-Mark** to allow the software to reconfigure with updated Windows settings.

Installation Guide

If you have not done so, please install the I-Mark software now.

If you did not purchase a PC* with your CMT machine you will need to load the software provided with your purchase of your CMT machine. This section will help you get the I-Mark marking software installed on your PC*.

> **All M Series and any custom systems that are supplied with a PC have the I-Mark software preloaded. For these systems proceed to understanding which mode is best for you.*

This Section is written with instructions to install the I-Mark software with USB connection support.

It is very important to install the software in the order listed with this instruction manual to limit the possibility of errors.

Locate your USB flash drive found in your quick start guide.

This is your time limited software-unrestricted license provided with the registration of your I-Mark.

Register your I-Mark at:

http://www.marking-machines.net/I-MarkRegistration.html

For more information go to section, “How to Update Your I-Mark License”.

Installing Software:

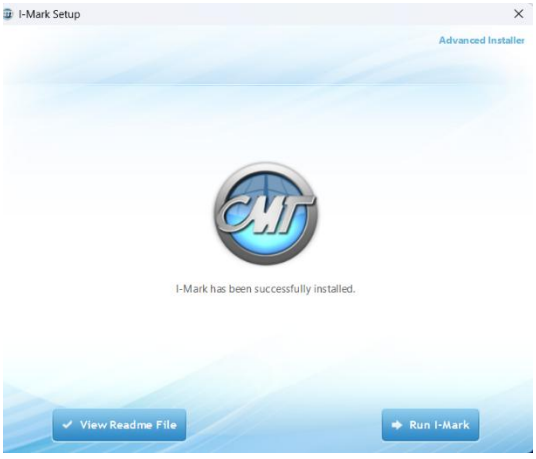
The Installation guide will walk you through setup of the software by simply reading the on-screen instructions you can get through the installation painlessly. Be sure to use the default settings and installation locations when going through the installer wizard.

Software must be installed on a PC running Windows®. This software is used to design the marketing layout.

Steps:

1. Insert provided USB thumb drive into USB port in PC.
2. If program does not auto-start, proceed to use the windows explorer to access to device from your computer, and run the rile ../setup/I-Mark-Setup.exe.
3. Follow on screen setup menu to complete the installation. Read the E.U.L.A for program and version highlights.

CMT Recommends the Install Now Choice, unless otherwise specified to not do so.



For the successful completion of software download please allow the installation application to make changes to your device.

Congratulations on the successful installation.

4. Run the I-Mark program from the I-Mark Icon on the desktop.

Understanding Which Software Mode is Best for You

When launching the software, you must first select the operating mode: **Basic Mode** or **Advanced Mode**.

Basic Mode provides a streamlined interface with essential marking functions. It is designed for quick setup and is recommended for **stand-alone marking machines**.

Advanced Mode is recommended by CMT for **system integrators** who require expanded I/O control, communication capabilities, and advanced configuration options available on I-Mark controllers.

SELECT BASIC IF NOT TOLD SO OTHERWISE.

CONTACT CMT FOR FURTHER CALRIFICATIONS.

Custom software settings may restrict some of the advanced software settings. The software may be restricted for single machine use or may be limited to I/O protocols and 2D functionality.

In addition, advanced software applications may have different access levels to ensure that marking legends and settings are not changed inadvertently. And may even be customized to allow access to certain machines on the network and not others, depending on responsibility.

How to Update Your I-Mark License Key

Our term-sale products ship with a temporary license key. When this key expires, you will see a "Key Expired" Fault pop up if you try to make a mark and the machine will not run. We recommend registering your product before this key expires to avoid interruptions in production. Here's how:

Retrieve your Machine ID number:

1. Ensure the Controller is connected to the operator PC and powered on.
2. Open the I-Mark Software and connect to the Controller as though you were preparing to make a mark.
3. Click on "Diagnostics" and document the 8-character Machine ID. You will need to provide this on the registration form later.

Note: The days remaining on your temporary license is shown under the Machine ID.

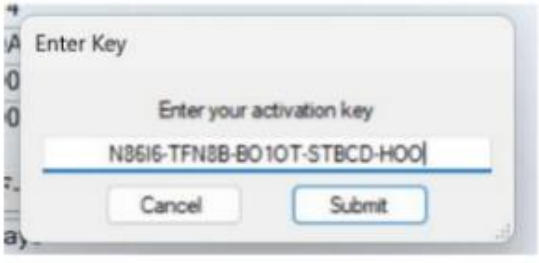
Online Registration Form

I-Mark Registration

Click the link above to access our online registration form and provide the requested information. The information will automatically be emailed to us at CMT. Allow one business day for a response.

If you have trouble clicking the link, you may also cut and paste http://marking-machines.net/I-Mark_Registration.html in your browser to reach the registration form.

Upon receiving your Registration info, CMT will verify your purchase and supply you with a permanent License Key.



1. With the Controller on and connected to the operator PC, return to “Diagnostics” in the I-Mark Software.

2. Click on “Update Key” in the System Actions group.

3. When the dialog window pops up, simply copy and paste the key CMT provided into the field and click “Submit.”

4. The I-Mark software will do a soft reset of the Controller and be ready to use again.

Note: in some instances, when the Controller reconnects to the I-Mark software, the Machine ID will not be visible. Simply restart the I-Mark software and power cycle the controller to clear this error.

Navigating The Workspace

Launching the I-Mark Software

The I-Mark software can be launched from the desktop shortcut or from the application directory.

Select the **I-Mark** icon to start the software.
Once the software has fully loaded, the Start Page will be displayed.

Workspace

A **Workspace** is a collection of layouts, files, machines, and global settings associated with specific I-Mark controllers. It provides a way to group these items for efficient organization, management, and monitoring by an operator or system.

Note: The I-Mark program interface, including window arrangement and navigation, may vary depending on user preferences, applications, or system configurations.

Understanding the Workspace

A Workspace defines the relationships between:

- Marking layouts
- Controllers
- Graphics and fonts
- Global system settings

By using a Workspace, the software displays only the machines and data relevant to a specific operation, rather than all controllers on the network.

Practical Example

In a large manufacturing facility, multiple machining cells may exist, each dedicated to a specific part or process. Each cell can contain one or more I-Mark controllers with their own layouts, graphics, and settings.

A Workspace allows you to:

- Group only the controllers for a specific cell
- View and manage only the layouts and machines assigned to that group
- Prevent accidental interaction with machines outside your responsibility

When a Workspace is opened, only the controllers mapped to that Workspace appear in the Navigation Pane, providing a cleaner interface and simplifying management.

Workspace Scope and Parameters

A Workspace defines the machine parameters and the global I-Mark environment, including:

- Which machines are available for marking (mapped controllers)
- Global machine settings
- Global counter settings
- Global I/O configuration

By creating a new Workspace, the system searches for machines connected to your computer or network and allows you to connect to them. Once connected, you can begin editing their properties.

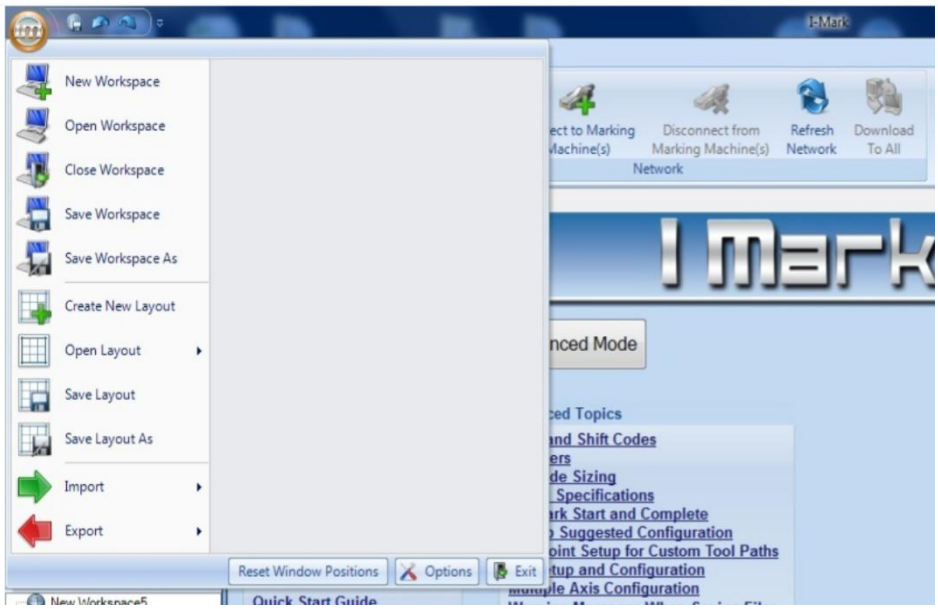
Creating a New Workspace

When a new Workspace is created, the system will search for marking machines connected to the computer or available on the network. The user may then select which machines to associate with the Workspace. Once connected, the properties of those machines can be viewed and edited.

A new Workspace can be created in two different ways:

Method 1: ORB Menu

1. Select **New Workspace** from the ORB menu. *(The ORB is the Intelli-Mark symbol located in the upper-left corner of the main application window.)*



Method 2: Start Page

1. From the Start Page, select **Advanced Mode**.
2. Choose **Create New Workspace** to create multiple

Creating multiple is a advanced mode only feature

Note: Workspace creation is available only in **Advanced Mode**.

Then choose Basic Mode vs Advanced Mode

The I-Mark software operates in two modes: **Basic Mode** and **Advanced Mode**.

- **Basic Mode**
  - Displays all marking machines detected on the network

- Does not restrict machine visibility
- Does not use Workspaces to filter controllers

- **Advanced Mode**
  - Enables the creation and use of Workspaces
  - Allows the user to limit which machines are visible and accessible
  - Recommended for production environments with multiple controllers

By using Advanced Mode with Workspaces, operators can reduce screen clutter, limit machine access, and improve overall system organization.

Opening an Existing Workspace

To open an existing Workspace:

1. Select **Open Workspace** from the ORB menu.
2. Use the file explorer dialog to navigate to the desired Workspace file.
3. Select the file and click **Open**.

Default Workspace file location:
C:\My Documents\I-Mark

Saving a Workspace

To save changes to a Workspace:

1. Select **Save Workspace** from the ORB menu.

Important notes:

- Workspaces are **not saved automatically**

- An asterisk (*) displayed next to the Workspace name indicates unsaved changes
- Workspace files use the .ctml file extension
- Saved Workspace files are stored in the I-Mark data directory

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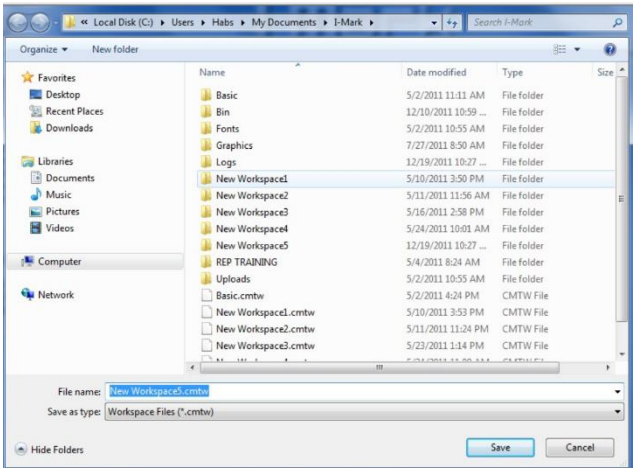
Workspace File Status Indicator

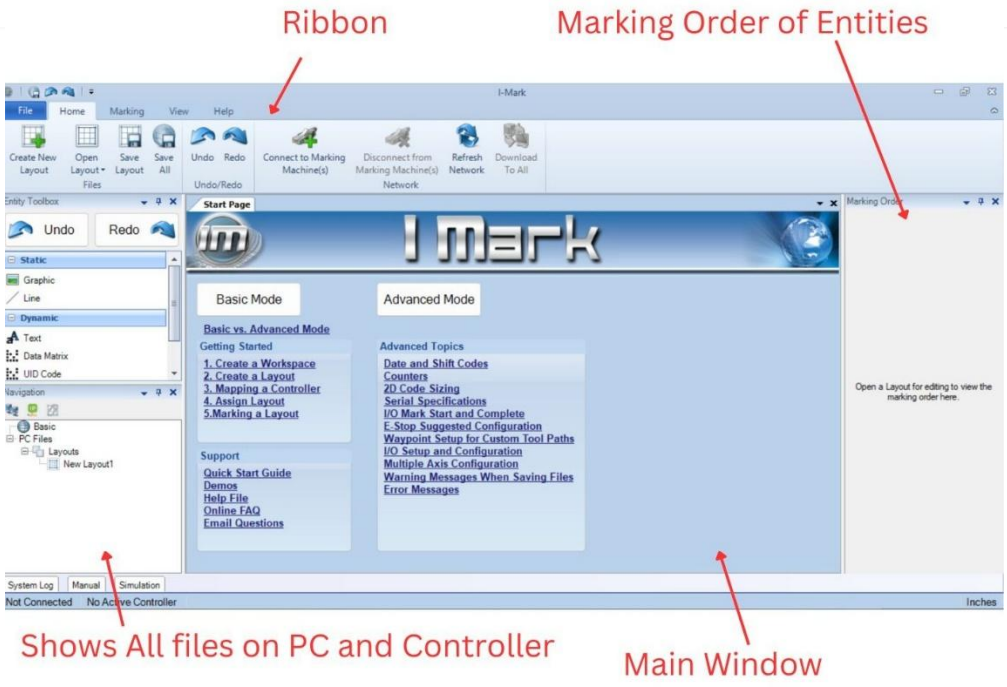
If a Workspace has been modified but not saved, an asterisk (*) will appear next to the file name in the Main Work Area tab. Once the Workspace is saved, the asterisk will be removed.

Workspace files are **not created or saved automatically**.



The file is not automatically created nor saved. The filename on the tab in the Main Work Area will be followed by an asterisk if the file has note been saved in its current state.

When the file is saved the file is located in the data directory under the Intelli-Mark program files. The extension name is .ctml.



Creating a Workspace

Workspaces Overview

Creating a new workspace is available only in Advanced Mode.

Workspaces are the **only method** by which the user can **limit which marking machines** the software attempts to locate and communicate with.

- In **Basic Mode**, all machines detected on the network are displayed in the **Navigation Pane**.
- In **Advanced Mode**, Workspaces allow the operator to **select which machines** on the network will be accessed.

By creating multiple Workspaces, operators can:

- **Restrict machine visibility**
- **Reduce interface clutter**
- **Improve operational safety**

- **Simplify management of multi-controller environments**

Creating a New Workspace

Steps to Create a Workspace:

1. Make sure you have selected advanced mode if you have not, go to file menu and select change user mode, then select advanced. From there click on New Workspace.
2. A workspace is saved as a **.cmtw file**. To open it, click **File** → **Open**, and select your workspace file.
    - Opening a new workspace will **reset i-Mark** for that workspace.
    - If this is your first time opening it, you may **overwrite existing files** if duplicates exist. Don't worry—these files are not lost, just replaced by exact duplicates.
3. Click on **Workspace** in the navigation bar, then select the **controller** you are using that is connected under the workspace bar.
    - The system will **load the controller and PC together**.
    - When prompted to select which files to use, choose **use marking files if desired files are stored on controller, or choose use files in workspace if files are stored on pc.**
4. If using **advanced mode**, make sure you set your default workspace, so when I-Mark application launches it launches with that workspace. Go to **file menu**, select **options**, from options scroll to the bottom then **under Miscellaneous**. Click on **automatic workspace to load**. Then select the button with **three dots**, which prompts a file open function to your file directory. From there select the workspace you wish to set as the default.

Using Multiple Workspaces with Multiple Graphics (Advanced)

Note: This is an **advanced scenario**. Most operators will not need to use multiple workspaces with multiple graphics. Only use this approach if you are managing **several layouts or complex graphics simultaneously**.

- When using multiple **layouts** with your own **graphics**, it is recommended to **create a separate workspace** for each project and use **Advanced Mode**, as multiple workspaces may be required.
- Workspaces allow you to **limit which machines the software attempts to communicate with**, reducing the risk of errors or confusion when working with multiple controllers.
- Ensure your **graphics are clean and optimized** before using them in multiple workspaces to avoid system errors.

Workspace Ribbon – Structure and Navigation

Ribbon Overview

Ribbon Overview

The I-Mark software uses a ribbon-based interface similar to other Windows-based applications. The ribbon is located across the top of the application window and displays tool groups based on the active tab and current user context.

Selecting a tab (File, Home, Layout, Entity, Marking, View, Help, or Settings) updates the ribbon to display the commands relevant to that function.

Ribbon content is **context-sensitive**. Certain tabs, such as the Entity tab, appear only when applicable.

Quick Tab Performance Summary

Home Tab: This will be your base of operations for managing projects – save and open previously saved – along with managing your machine – connecting and disconnecting.

Layout Tab: The layout tab is where you will create a layout you wish to run along with the layout settings – essentially you can create a visual representation of what you wish to mark on your part.

Entity Tab: This tab will open once you have created a text. Once the text appears on your layout you click on the text, and you will see the entity tab automatically added to your tool bar.

Marking Tab: Will allow you to connect or disconnect from the controller.

View Tab: In the view tab you can customize your layout, essentially customizing what you see in the application environment to best suit your work.

Setting Tab: You will find basic machine settings: the speed of your pin, and set your specific scribe mode.

Ribbon Navigation Guide

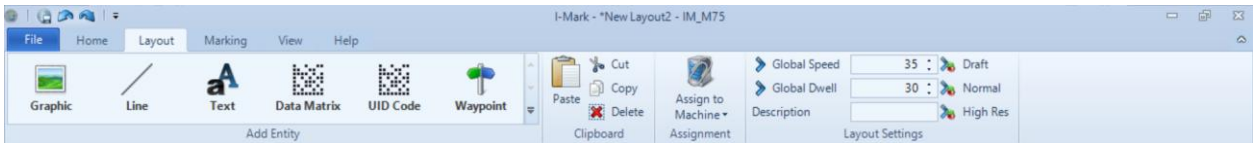
Home Tab

The Home tab serves as the primary starting point for layout and machine management.

From the Home tab, you can:

- Create new layouts
- Open previously saved layouts
- Save the active layout
- Undo or redo changes in the current layout
- Connect to or disconnect from a marking machine
- Refresh the network to locate available machines

Layout Tab



The layout tab will open once you create a layout – by selecting “create new layout” in the home tab, though this can also be done by opening a previously saved layout.

This tab is used to define the contents of the marking layout and insert entities into the layout.

- Graphic
- Line
- Text
- Data Matrix
- UID Code
- Set Waypoints

Selecting any of these options will automatically open it in your layout.

Entity Tab

The Entity tab opens in the ribbon after text has been created in the layout. Selecting the text automatically switches the ribbon to the Entity tab.

Use the Entity tab to create, modify, and teach elements within the layout.

In the entity tool bar, you will:

- Select your starting position and the alignment of the green dot within your entity
- Group and align your layouts (for when you have multiple lines)
- Manually choose your X and Y coordinates if known
- Teach your layout position
- Enter/ modify your text reading
- Choose your font
- Choose your character height, width and separation.
- Adjust angles and create a radius
- Change the appearance of your text.

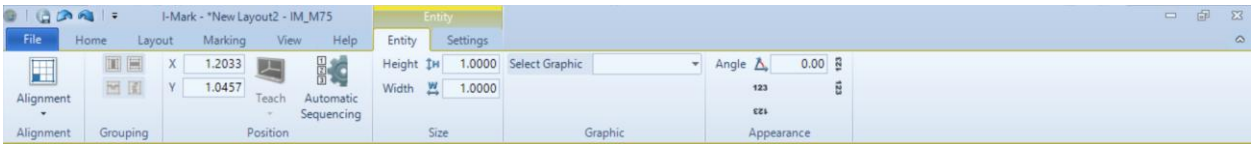


Figure 1 Graphic Entity

Figure 2 Text Entity

Figure 3 Line Entity

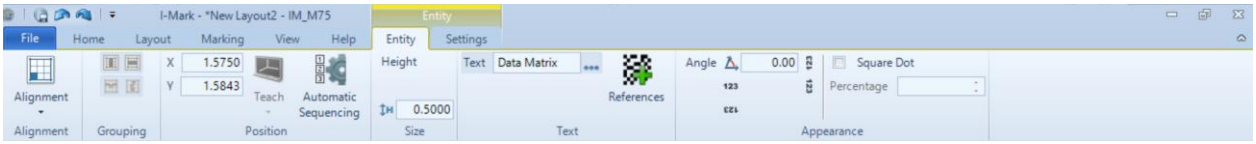


Figure 4 Data Matrix

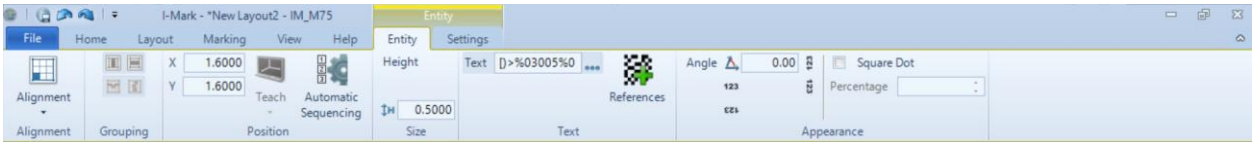


Figure 5 UID Entity

Figure 6 Waypoint

Marking Tab

The Marking tab is used to manage communication between the software and the marking controller.

From this tab, you can:

- Connect to the controller

- Disconnect from the controller

View Tab

The View tab allows customization of the application environment.

- Make your layout screen larger or smaller
- Customize your layout window by adding grid lines, rulers, and axis labels
- Adding navigation window, marking window properties windows and marking window to your layout screen

Help Tab

The Help tab provides access to system help and support resources.

Settings Tab

You will find basic settings: the speed of your pin, and set your specific scribe mode.

Connecting to Machine

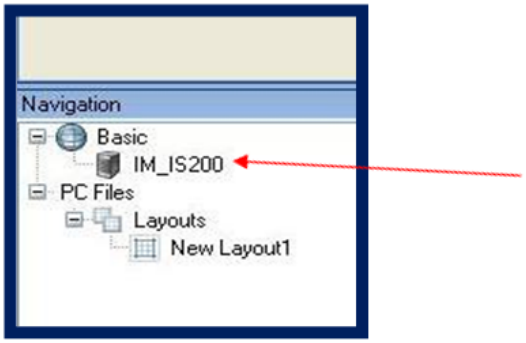
If the system was purchased as a complete package, it may be configured for automatic connection. In this case, the machine will connect during startup.

After reviewing the I-Mark ribbon interface, the next step is to connect the marking machine to the IM200 controller.

Procedure

1. Select the **Marking** tab located on the ribbon at the top of the screen.

2. Click **Connect to Marking Machine**.
3. The system will verify network status and initiate pairing between the marking head and the IM200 controller.
4. When the connection is successful, a green check mark will appear next to the machine ID in the left navigation pane (e.g., IM-M75, IM-M125, IM-M200).



Select the machine ID to open the controller window.

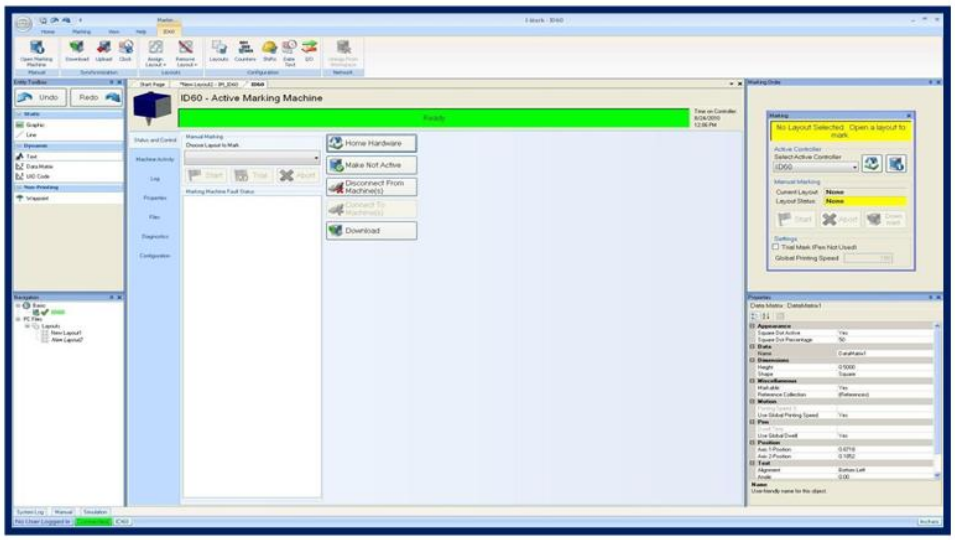
5. The machine control page will open. This is the active control interface for the connected marking system.

Control Page Functions

The control page allows you to:

- Download marking programs to the machine
- Adjust machine settings
- Execute marking operations

Once connected, the system is ready for layout creation and program execution.



Troubleshooting

If the machine does not pair:

- Verify network connections.
- Confirm the controller and marking head are powered on.
- Check and modify the IP address configuration as needed.
- Verify you are using matching hardware and matching software.

If no systems are available, check the following issues:

1. Is the computer that I-Mark is running on connected to the network?
2. Are the Marking Systems connected to the Network?
3. Are the Marking Systems on?
4. Have the Marking Systems been properly configured/mapped?

Disconnecting from the Network and Marking Machines

To safely disconnect a computer from the network and ensure all changes are retained, complete the following steps **in order**:

1. **Save the Workspace**
   Saving the Workspace ensures that all layout and configuration changes made during the session are stored within the software environment.

2. **Download to All**
   Perform a *Download to All* operation to transfer the current Workspace data to all connected controller(s). This ensures that the most recent changes are saved directly on the marking machine controllers.

3. **Disconnect from Marking Machine(s)**
   Select **Disconnect from Marking Machine(s)** on the **Home** tab to terminate communication between the software and the connected marking systems.

After completing these steps, you may safely close the I-Mark application or disconnect the computer from the network.

Creating a New Layout

After the marking machine has been detected and connected, create a new marking layout.

A marking layout is the visual representation of the data the machine will mark. The content placed in the layout window will be reproduced exactly on the material.

These files are not automatically created nor saved. The filename on the Main Work Area tab will be followed by an asterisk if the file has note been saved in its current state.

When the file is saved the file is located in the data directory under the I-Mark program files. The extension name is .ctml

Procedure

1. Select the **Home** tab on the ribbon.

   This icon is located in two places: the Orb Menu and the Home Menu Ribbon. This command will create a blank layout in the current workspace.

2. Click **Create New Layout**.

3. In the pop-up window, select the appropriate machine type.
   - In most cases, only one machine option will be available.
   - If multiple machines are listed, select the machine intended for marking.
4. Do not modify the hardware configuration settings.

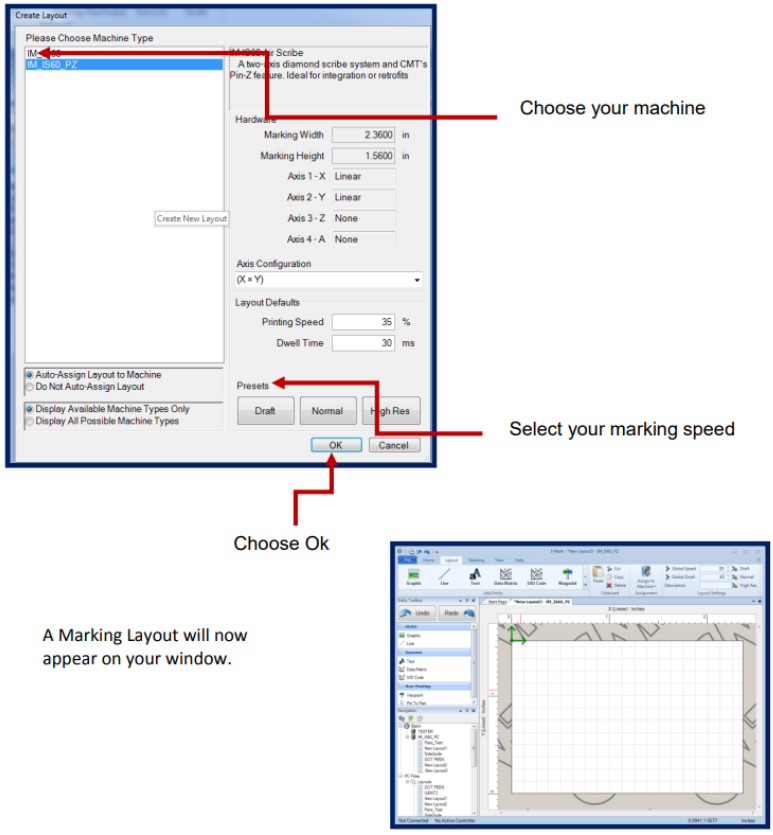
   Do not change:

   - Marking width
   - Marking height
   - Axis configuration

   These settings are automatically configured based on the selected machine – DO NOT TAMPER WITH.

5. If the marking application requires custom parameters, adjust speed and dwell time as necessary according to application requirements.
6. Select the desired preset:
    - **Draft** – High-speed marking for mock-ups with reduced precision.
    - **Normal** – Balanced speed and quality for standard production marking.
    - **High Resolution** – Reduced speed for maximum clarity and precision.
7. Select **OK** to create the layout.

The new layout window will open and is ready for content creation.



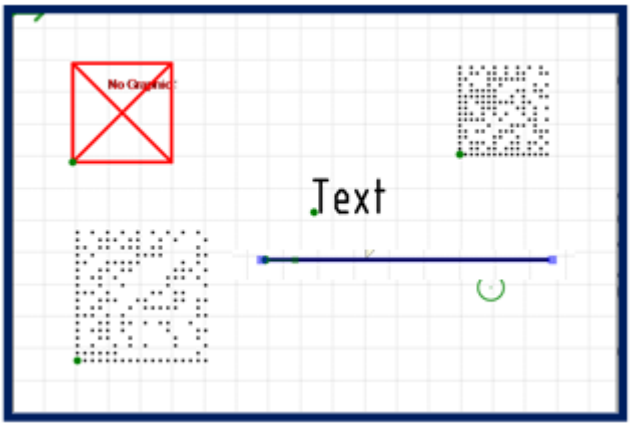
You will notice that the I-Mark program has already moved to the Layout ribbon for you

Inserting Entities

After creating a new layout, the software will automatically open the layout window and display the layout ribbon.

The layout must contain the data that will be marked. Each individual piece of marking data is referred to as an entity.

Available Entity Types



To add content to the layout, select the appropriate entity type from the ribbon. The following entity types are available:

- **Graphic**
- **Line**
- **Text**
- **Data Matrix**
- **UID Code**

Each inserted entity will appear in the layout window and represent the exact content to be marked on the material.

Adding Text

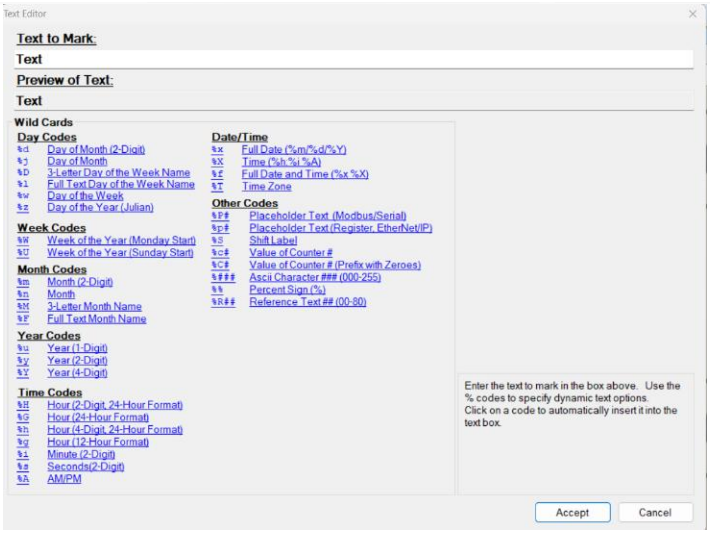
Text entities allow you to insert alphanumeric content into the marking layout.

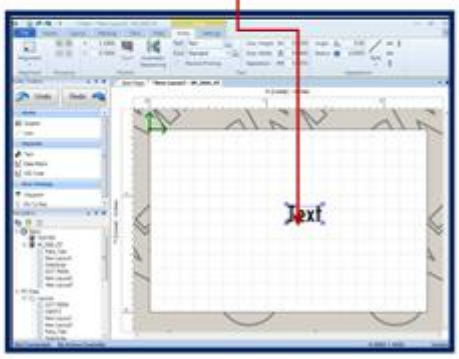
Procedure

1. Select the **Text** icon from the ribbon.

A text entity will appear in the layout window.

2. Double-click the text entity to open the text editor.
3. Enter the desired text in the editor.
4. Select **Accept**.





Once you select the text icon in the ribbon you will notice it will appear on your layout.

Reverse Printing for Multiple Lines

When marking multiple lines of text, enable the **Reverse Printing** option for alternating lines.

Reverse Printing causes the machine to begin marking at the end of the selected entity and move toward the beginning.

To optimize marking machine efficiency:

- Enable **Reverse Printing** on every other line of text.
- Alternate this setting for each consecutive line.

Proper use of this feature improves readability and reduces unnecessary axis travel.

NOTE: REVERSE PRINTING ON SOME MACHINES CAUSE A SMALL DOT TO APPEAR BETWEEN WORDS.

Text Properties

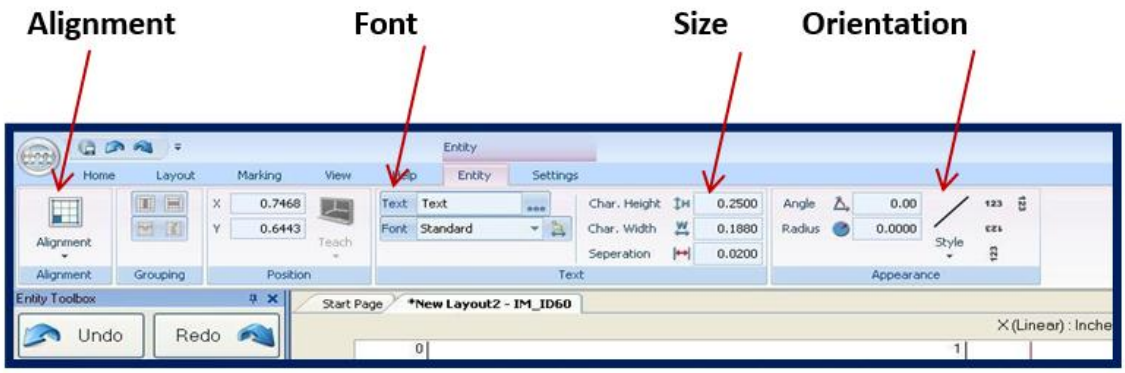
Once a text entity has been inserted into the layout, its properties can be modified.

When a text entity is selected in the layout window, the ribbon automatically updates to display the properties specific to that entity.

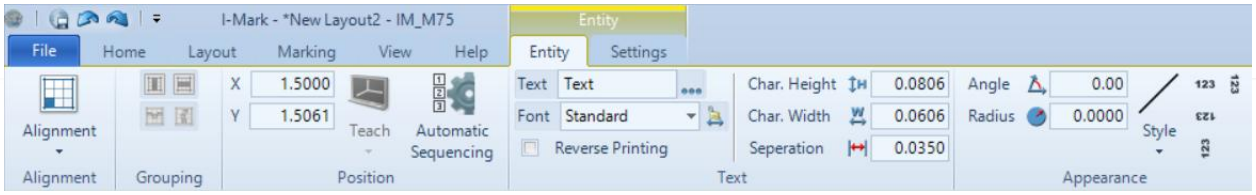
Editable Properties

The following text properties may be adjusted:

- **Size**
- **Angle**
- **Orientation**
- **Font Type**



Adjustments made in the ribbon are reflected immediately in the layout window.



Accessing the Properties Panel

Text properties may also be accessed through the Properties panel.

To open the Properties panel:

1. Select the text entity in the layout.
2. Select the **Help** tab.
3. Click **Properties**.

A properties window will appear in the lower-right corner of the application workspace.

Scroll within this panel to view all available entity parameters. Double-click a property field to modify its value.

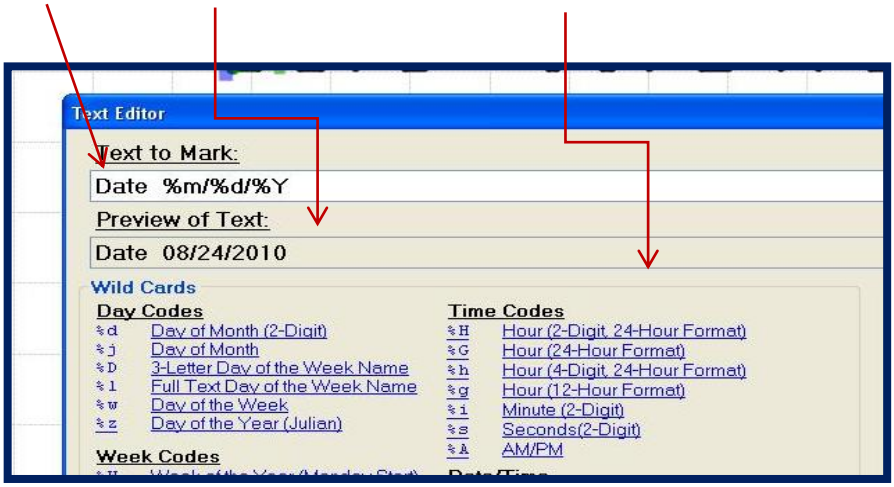
Columbia Marking Tools recommends adjusting text properties through the ribbon interface unless advanced configuration is required.

Editing Text Content

To edit the content of a text entity:

1. Double-click the text entity in the layout.
2. The Text Editor dialog window will open.
3. Modify the text as required.
4. Select **Accept** to apply changes.

Input field **Preview Field** **Hyperlinks**



Fixed and Dynamic Text

The Text Editor supports both fixed and dynamic text.

- **Fixed Text** – Static content that does not change (e.g., part name, model number).
- **Dynamic Text** – Automatically updating content (e.g., counter, date, time).

A single text string may contain:

- Fixed text
- Dynamic text
- A combination of fixed and dynamic elements

Dynamic elements update according to system configuration at the time of marking.

Interface Flexibility

Most functions within the I-Mark software can be accessed in multiple ways, including:

- Ribbon icons
- Side panels
- Right-click shortcut menus

Regardless of the method used, changes apply directly to the selected entity.

Wild Cards

A *Wild Card* is CMT's term for **dynamic text**—text elements that automatically change based on system data.

The following example demonstrates how a Wild Card can be used within a text string that combines **fixed text** with **dynamic (Wild Card) elements**.

You will notice that once you enter text into the input field it will also appear in the preview window – a helpful feature to further your understanding and comprehension of the text you are placing.

Creating a Dynamic Date String

To create a text string that displays the current system date (mm/dd/yyyy), follow these steps:

Procedure

1. In the **Layout Ribbon** tab, select the **Text** icon to insert a text entity into your layout.
2. Double-click the text entity to open the **Text Editor** window.
3. Type any fixed text in the editor. Example:
   Date
4. Insert Wild Cards using the list of options in the Text Editor window, or type the corresponding code directly at the top of the editor:

- Month (2-Digit): %m
- Day of Month (2-Digit): %d
- Year (4-Digit): %Y

5. Add forward slashes / as needed to format the date:
   Example sequence: Date %m/%d/%Y
6. Click **Accept** to save the text string.

The text entity will now display in the layout according to the settings of the layout (position, font, size, orientation). The preview window reflects the final appearance.

Important: Wild Card codes are case-sensitive. Ensure correct case to generate the proper value.

Make sure to click "Accept" before exiting.

Quick tip! If you want to quickly edit your already written text click on the entity, to open the entity ribbon, there you will find a section called text, and right above the font selector, you can click on your text to quickly edit – without opening the larger window dialog box.

Congratulations you have just written a dynamic text, now we can edit our text

---

Character Size

Methods of Adjustment

1. Manual Resizing

- Select the text entity in the layout.
- Use the corner arrows to drag the text to the desired size.

This method behaves similarly to resizing text in other standard software programs.

2. Numeric Entry

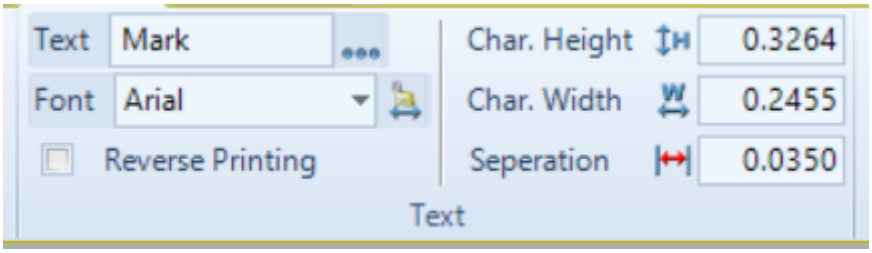
- In the **Entity Ribbon**, navigate to the Text section.
- Enter the desired character height in inches.

Note: When adjusting character height numerically, the character width automatically updates to maintain the original aspect ratio of the text. This also occurs when resizing manually using the corner arrows.

Separation Control

Separation adjusts the spacing between individual characters in a text entity.

- Enter the desired separation value in the **Entity Ribbon**.
- Separation ensures precise control over text appearance in your mark.



Important: Unlike character size, separation cannot be adjusted manually by dragging; it must be set numerically in the ribbon.

Angular Text

Creating Angular Text

Angular text allows you to rotate or slant a text entity within the layout to a specified angle.

Procedure

1. Select the text entity in the layout.
2. The **Entity Ribbon** will update to display properties for the selected entity on the **Entity Tab**.
3. In the angle dialog box, enter the desired rotation or slant angle.
4. Press **Enter** or click outside the box to apply the change.

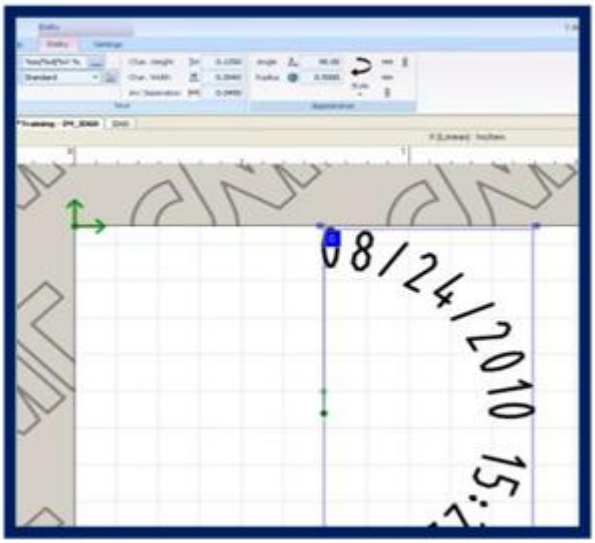
The text entity in the layout will update immediately to reflect the new angle.

Radius Text

Radial text allows a text entity to follow a circular path for marking in a curved pattern.

Procedure

1. Select the text entity in the layout.
2. The **Entity Ribbon** will update to display properties for the selected entity.
3. Locate the **Radius** property.
4. Enter the desired radius value.
5. Press **Enter** or click outside the field to apply the change.



QUICK TIP: FOR PER APPLIED RADIUS OF 0.5000 CLICK STYLE THEN SELECT CLOCKWISE OR COUNTER-CLOCKWISE DEPENDING ON WHERE YOU WANT YOU TEXT TO FOCUS.

The text entity will update immediately in the layout to reflect the specified radius.

Graphics

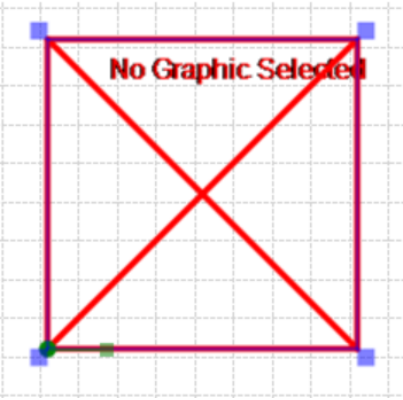
I-Mark software allows graphics or logos to be added to a marking layout.

Graphics provide additional identification capability and expanded marking flexibility.

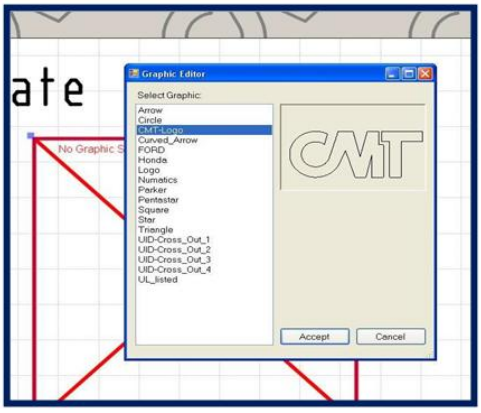
Inserting a Graphic Entity

1. Select the **Layout Ribbon** tab.
2. Click **Graphic**.

A graphic placeholder will appear in the layout window. The placeholder is displayed as a red box with a cross and the text:



“No Graphic Selection”



This indicates that a graphic has not yet been assigned to the entity.

3. Double click on the graphic placeholder in the layout.

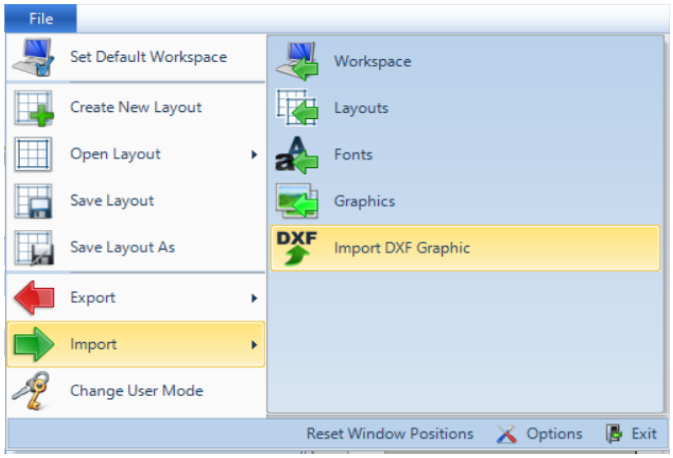
A list will appear showing:

- System preloaded graphics
- Previously imported graphics

Select the desired graphic from the list.

Importing a DXF Graphic

Graphics must be in **DXF format** before importing.
Ensure your **DXF file** is prepared and saved correctly prior to beginning the import process.



Procedure:

1. **Select** the **File tab** above the ribbon.
2. **Select Import.**
3. From the submenu, **select Import DXF Graphic.**
4. **Browse** to and **select** the desired **DXF file.**
5. Go to the **Layout ribbon**, and **select Add New Graphic Entity.**
6. Then, in the **Entity ribbon**, go to **Select Graphic Function**, and click the **down arrow** to show all **available graphics.**
7. From this list, **select the graphic** you wish to **display.**

8. **Notice:** Just like any other entity, you will have to **teach the machine the position.** Go to the **Teach Position section** for instructions.

Optional – Using a Graphic as a Template:

If you wish to show your graphic as a **template**, **deselect it from the marking order.** It will appear **grey on the screen** and **will not be marked** on your part.

Warning: Once deselected, the graphic is **locked on the layout** and **cannot be moved** until you reselect it.

Notice:

- The graphic of the **template** should be **made to scale** if not already done so. To verify, we recommend doing a **trial run** to see if the graphic's text matches the placement you want on the material you are marking.

Quick Troubleshoot:

- Use a **simple graphic** for testing. Complex graphics may cause **system errors.**

If you have an **issue importing a graphic**, it could be because your graphic is **too busy** or the text is **too small**. To fix this:

1. **Clean the file** of any excess "noise."
    - We recommend cleaning the file of unnecessary noise **before importing** for the **cleanest conversion.**
2. **Enlarge the graphic** within the file for better conversion.
    - If the file still doesn't work after cleaning, it is likely a **text size issue.** You must **blow up / enlarge the graphic** to a bigger size. Don't worry—you can **shrink the graphic** to the correct size later in the i-Mark application.

Saving and Naming the Graphic

After selecting the DXF file:

1. Save the graphic to the system library.

2. Use the dialog box at the bottom of the window to rename the graphic, if desired.

Renaming graphics is recommended for easier identification during future use.

Arc Tolerance Setting

During the import process, you will see an **Arc Tolerance** setting.

The default value is **100**.

Arc Tolerance determines how many line segments are used to approximate an arc.

- Lower tolerance value = more segments (greater detail, smoother arc)
- Higher tolerance value = fewer segments (simpler arc structure)

Value range: **1 to 2000**

General guidance:

- Use higher values for simple graphics.
- Use lower values for complex graphics requiring higher arc precision.

Improper tolerance selection may affect graphic smoothness and marking performance.

Data Matrix and UID Code

2D Data Matrix codes are widely used for part traceability and permanent identification.

I-Mark software supports two types of 2D code entities:

- **Data Matrix**
- **UID Code**

Both entities encrypt fixed or dynamic data into a machine-readable format.

Inserting a Data Matrix Code

A Data Matrix entity may be inserted using either method:

- Select **Data Matrix** from the ribbon
- Drag the Data Matrix icon from the toolbox onto the marking layout

After insertion, the Data Matrix code will appear in the layout window.

To preview the encrypted data:

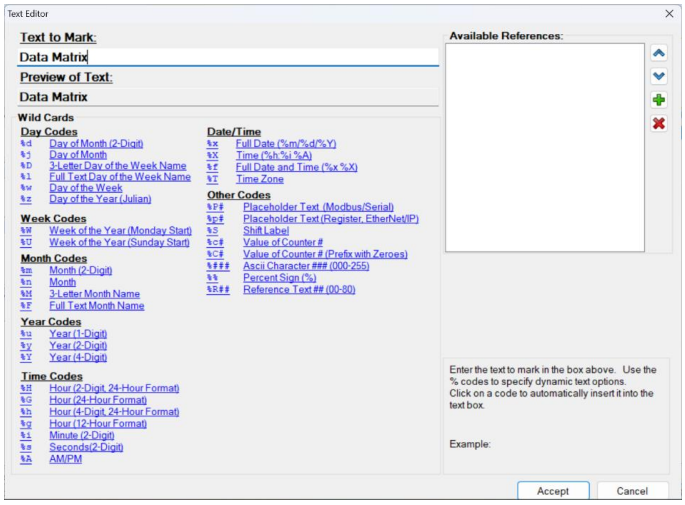
- Hover the mouse over the Data Matrix code without clicking.

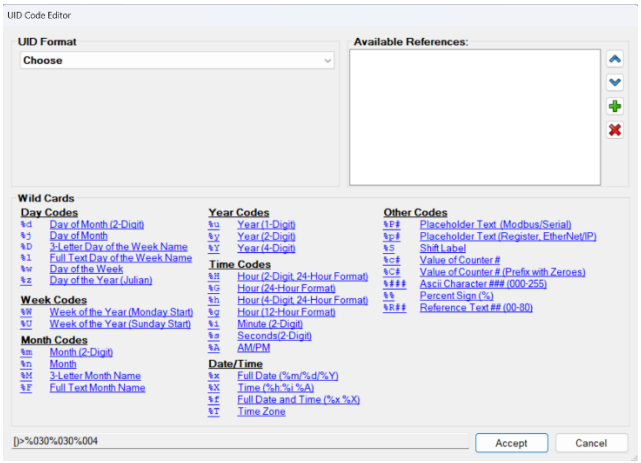
The encrypted string will be displayed.

Editing Data Matrix Content

To modify the encoded data:

1. Double-click the Data Matrix entity in the layout.
2. The **Data Matrix Editor** window will open. The editor is similar in appearance and function to the Text Editor.
3. Enter the desired data.





You may input:

- Fixed data (static values)
- Dynamic data (Wild Cards, counters, date, etc.)

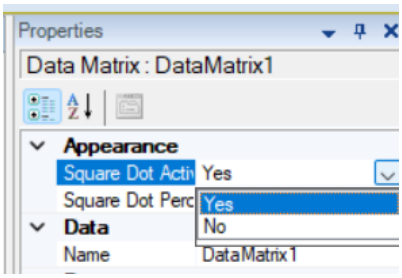
4. Select **Accept** to apply changes.
5. Hover the mouse over the Data Matrix entity to verify the updated encrypted data. The Data Matrix will update automatically in the layout.

Square Dot Feature (Scribe Units Only)

I-Mark systems offer a Square Dot marking option for Data Matrix codes.

Square Dot replaces standard round dot impressions with high-resolution square marks.

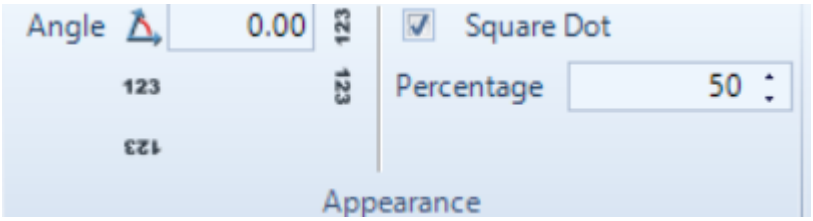
Benefits of Square Dot



- Improved readability on rough or irregular surfaces
- Enhanced scanning performance on castings
- Improved legibility on parts with heavy machining marks

Enabling Square Dot

1. Select the Data Matrix entity in the layout.
2. Open the **Properties** dialog, or the entity tab of the data matrix and click square dot in the appearance section.
3. Locate the **Square Dot** setting.
4. Select **Yes** to enable Square Dot marking.



Dot Percentage Adjustment

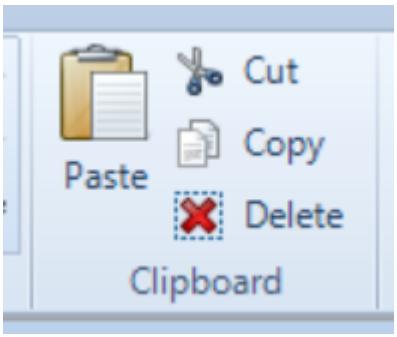
The **Dot Percentage** setting controls the relative size of the individual marked elements within the Data Matrix.

- Increase the value to enlarge dot size.
- Decrease the value to reduce dot size.

Dot Percentage should be adjusted according to material type, surface finish, and marking depth requirements. Improper dot sizing may affect code readability.

Copy, Cut, Paste, and Delete Functions

Copy



The **Copy** icon is located on the middle left of the **Layout Menu Ribbon**.

When selected, this command copies all currently selected entities to the clipboard without removing them from the layout.

Using the **Paste** command after copying will create a duplicate set of the selected entities. The paste command may be used repeatedly to create multiple duplicate sets.

Paste

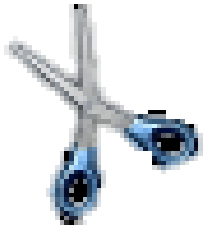
The **Paste** icon is located on the middle left of the **Layout Menu Ribbon**.

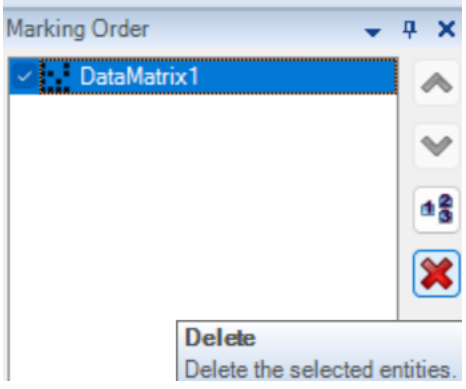
When selected, this command inserts into the currently open layout any entities that have been copied or cut to the clipboard. Each use of the paste command creates an additional set of the clipboard contents

Cut

The **Cut** icon is also located on the middle left of the **Layout Menu Ribbon**.

When selected, this command removes all currently selected entities from the layout and copies them to the clipboard.





Delete

The **Delete** command is available in two locations:

- In the **Marking Order Window**
- On the middle left side of the **Layout Menu Ribbon**

Both icons perform the same function.

When selected, this command permanently deletes all currently selected entities from the open layout. Deleted entities are those outlined in blue in the Main Work Area or highlighted in the Marking Order Window.

In addition, pressing the **Delete** key on the keyboard performs the same action.

The Marking Order Window serves as a legend displaying the position and style of all entities to be marked.

Display Settings – View Ribbon

Zoom Features

The Zoom features are controlled through four icons on the far left of the View Menu in the Ribbon.

The icon zoom in to a smaller area of the layout file on the screen.

The Actual icon will reflect the actual size of the mark. If used with pen options, it will help determine how close lines and character will be on the final product.

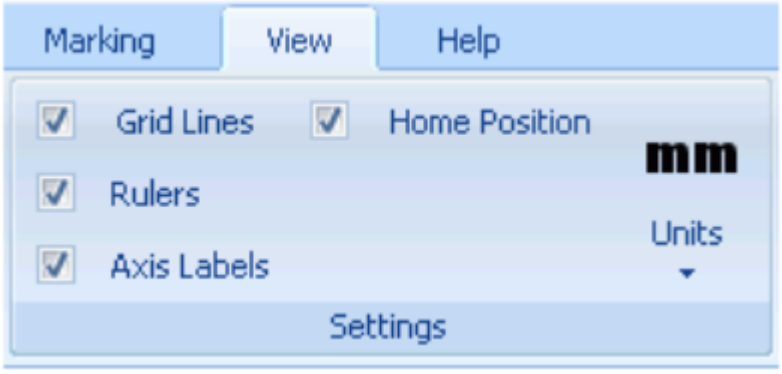
The out icon will zoom out to show more of the layout file on the screen.

The Fit icon will automatically display the entire marking field in the Main Work Area.

Grid/Rulers

Grid Lines: Check box for on. Internal grid lines go through the layout. area. Grid lines are shown every inch, or 5 millimeters.

Rulers: Check box for on. Rulers run along the top and left of the layout screen. They display inches or Millimeters depending on the units.



Axis Labels: Check Box for on. Specifies X,Y axis and motion type (linear, rotational), and Units.

Home Position*: Check Box for on. Home position is labeled with two intersecting green lines with arrows.

* Home position is defined as the maximum X and the Zero Y. This is the position that the marker is defaulted to start each cycle from.

Units: English or Metric. Select system through drop down menu. If In is shown the units are in Inches. If MM is shown the units are in millimeters.

Object Placeholders

Overview

Object Placeholders are **dynamic wildcards** used within text entities to automatically insert variable data at the time of marking. Unlike static text, placeholders allow the marking system to retrieve live values from external devices or internal controller registers, enabling automated serialization, traceability, and real-time data integration.

Placeholders are located in the **Other Codes** section and are embedded directly into a text string. During a marking cycle, the software resolves the placeholder and replaces it with the current value from its assigned source.

Purpose of Object Placeholders

Object Placeholders are used to:

- Eliminate manual text edits between marking cycles
- Automatically mark changing data such as serial numbers, batch IDs, or production values
- Enable integration with PLCs, scanners, databases, or networked control systems
- Support traceability and compliance requirements
- Reduce operator error and improve marking consistency

Placeholder Syntax

There are **two types of Object Placeholders**, distinguished by capitalization:

Placeholder	Type	Data Source
%p#	Placeholder Text (lowercase)	Modbus / Serial

%P#	Placeholder Text (uppercase)	Register / EtherNet/IP

Note: The # represents the object number assigned to the placeholder.

Type 1: %p# — Placeholder Text (Modbus / Serial)

Description

The %p# placeholder retrieves data from **Modbus or Serial communication sources**. This type is typically used when the marking system receives data from legacy equipment, barcode readers, serial devices, or external controllers communicating over Modbus or serial protocols.

Behavior

- The value is retrieved **at runtime**, just before or during the marking cycle
- The placeholder resolves the current value stored in the assigned Modbus or serial object
- The marked text updates automatically without user interaction

Common Use Cases

- Serial numbers provided by an external PLC
- Lot or batch numbers sent from a production line controller
- Operator-entered values passed through a serial interface
- Data from legacy systems without EtherNet/IP capability

Example

PART SN: %p1

If %p1 is mapped to a Modbus register containing A45792, the marked result will be:

PART SN: A45792

Type 2: %P# — Placeholder Text (Register / EtherNet/IP)

Description

The %P# placeholder retrieves data from **internal registers or EtherNet/IP-connected devices**. This is the preferred method for modern industrial environments using networked PLCs and EtherNet/IP communication.

Behavior

- Reads directly from controller registers or EtherNet/IP data tags
- Supports high-speed, real-time communication
- Ideal for automated, network-driven marking systems

Common Use Cases

- PLC-driven serialization
- Production counters
- Shift, station, or line identifiers
- Automated traceability systems tied to MES or SCADA platforms

Example

LOT: %P3

If register %P3 contains LOT-2026-014, the marked result will be:

LOT: LOT-2026-014

Key Differences Between %p# and %P#

Feature	%p#	%P#
Capitalization	Lowercase p	Uppercase P
Communication Type	Modbus / Serial	Register / EtherNet/IP
Typical Environment	Legacy or serial-based systems	Modern networked systems
Data Source	External device	PLC or controller register

Important: Capitalization matters. %p1 and %P1 are treated as entirely different placeholders.

Using Object Placeholders in a Layout

1. Create or select a **Text Entity** in the layout
2. Enter static text as needed
3. Insert the placeholder code (%p# or %P#) at the desired position
4. Download the layout to the controller
5. Ensure the placeholder object is properly configured and mapped

At runtime, the software automatically replaces the placeholder with its current value.

Best Practices

- Always verify placeholder mappings before running a Start cycle
- Perform a **Trial Run** to confirm positioning and formatting
- Use clear naming conventions for placeholder object numbers
- Avoid mixing placeholder types unless required by the system architecture
- Document placeholder usage for maintenance and troubleshooting

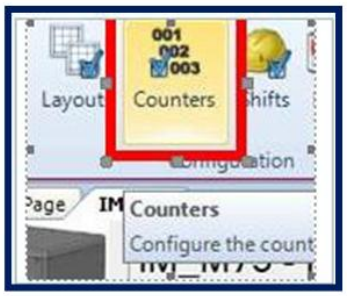
---

Summary

Object Placeholders allow I-Mark software to dynamically insert live data into marking layouts. By using %p# for Modbus/Serial communication and %P# for Register/EtherNet/IP communication, operators can create flexible, automated, and scalable marking solutions that support modern manufacturing traceability requirements.

Setting Up Counter

Setting Up Counters

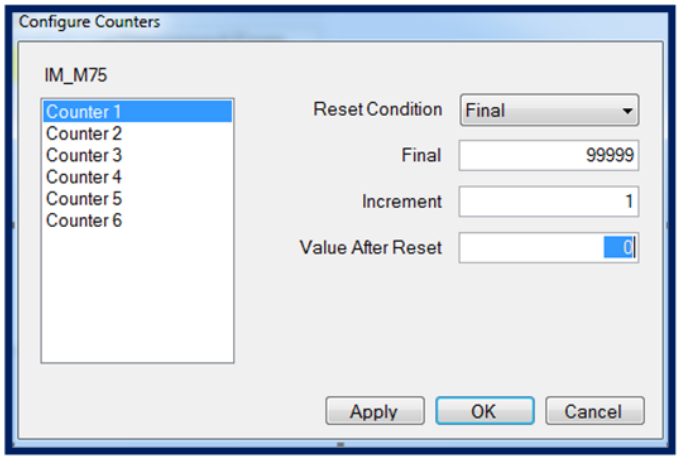


Counters in I-Mark software allow automatic numbering of parts or products, useful for serialization, batch tracking, or production counts.

Access the Counter Settings

1. On the **Ribbon menu**, select your **active machine**.
2. The **Counters dialog** will appear.

Configuring a Counter



1. Select the desired counter (e.g., **Counter 0**).
2. Set the parameters according to your application requirements.

Important Notes:

- The **Final Number** determines how many digits the counter will use.
    - Example: Final Number = 99999 → five digits.
- Maximum value = 99999. After reaching this value, the counter will **reset**.
- Additional **reset conditions** are available depending on your application.

Using Counters in Text Entities

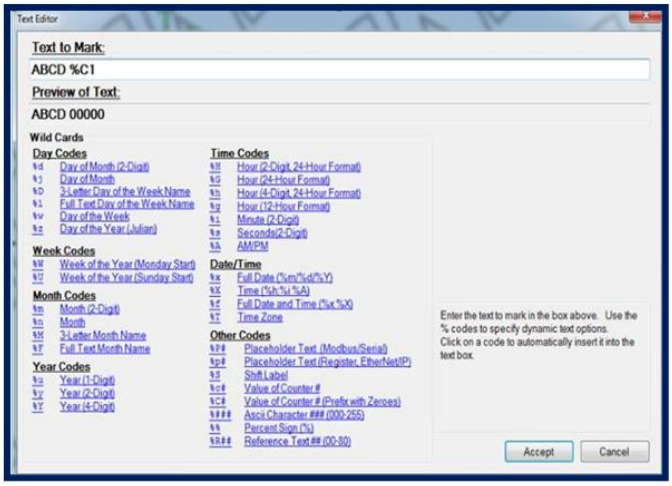
1. Insert the counter into your text string using the counter code:

   %C1 → Counter 1

   %C2 → Counter 2

   %C3 → Counter 3

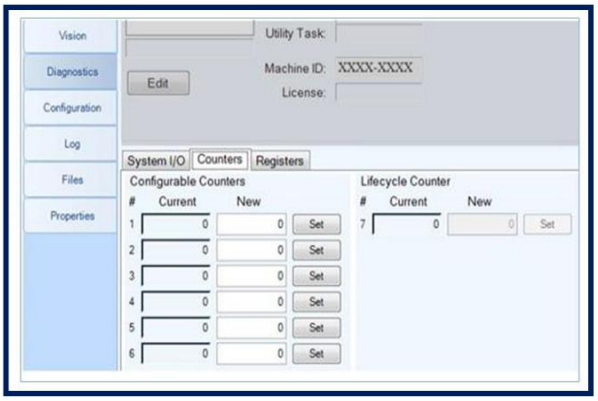
2. Place the counter code anywhere in your text entity.
3. Multiple counters can be used in the same layout or across different programs.



Ensure counters are uniquely assigned per program/layout to prevent unintended overlap.

Viewing and Overriding Counter Values

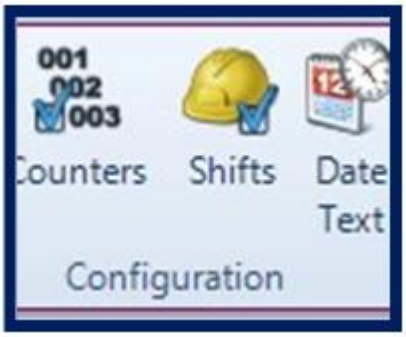
1. Navigate to the **Diagnostics tab** on the left side of the controller page.
2. Select the **Counters** tab.
3. Here you can:
   - View of current counter values
   - Manually override any counter as needed



Operational Notes

- Counters automatically increase according to the programmed layout.
- Ensure the correct counter number is used in the text entity to match your setup.
- Use the diagnostics view to monitor and adjust counters during production. This allows precise control of serialized marking and ensures repeatable, traceable outputs.

Setting Up Shifts

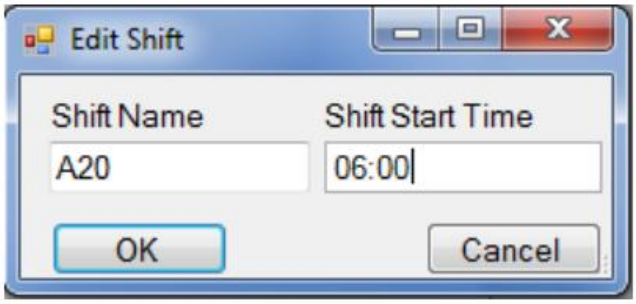


I-Mark software allows production shifts to be tracked and printed directly on parts. Shifts can be added, named, and linked to layouts using a dynamic code.

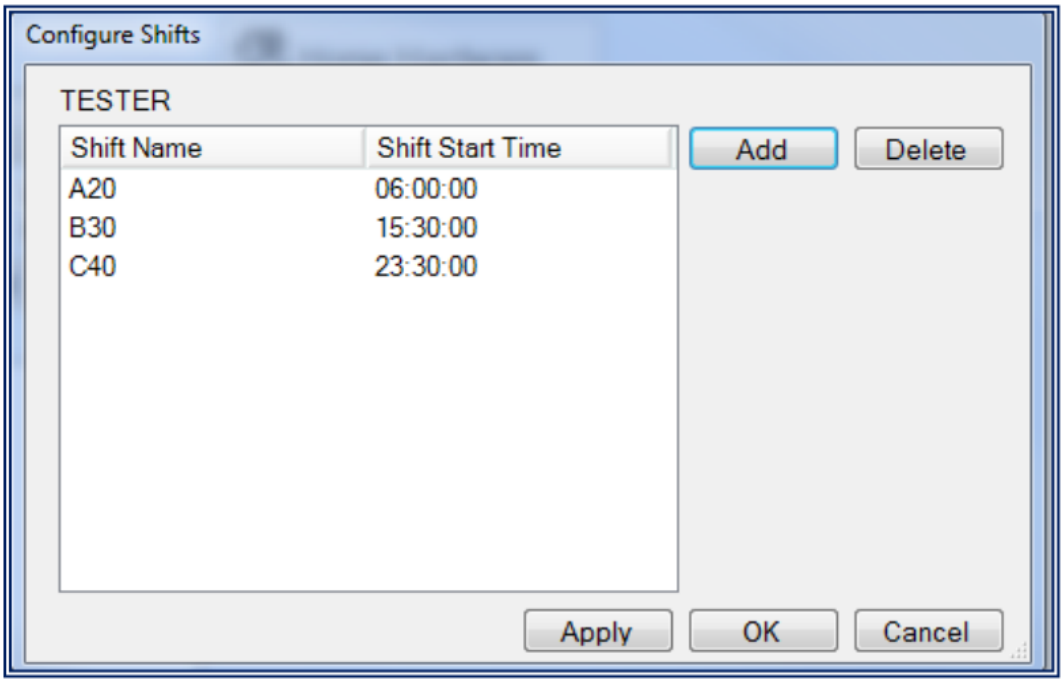
Accessing the Shifts Dialog

1. Let the software fully open.
2. On the **Ribbon menu**, select the **Shifts** tab.
3. The **Shifts dialog box** will open.

Adding a New Shift

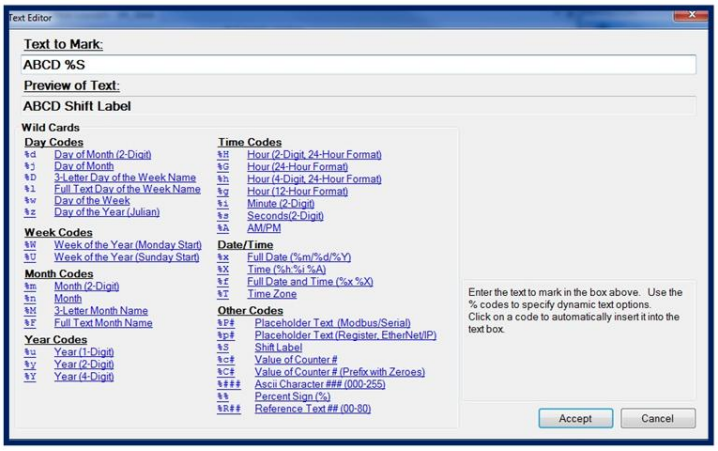


1. Click **Add** to create a new shift.
2. The **Edit Shift** box will appear. Configure the following:
    - **Shift Name:** Name your shift.
        - **Note:** The shift name will print on the part.
    - **Shift Start Time:** Enter the start time for the shift.
3. Repeat as needed to add additional shifts. You may use as many shifts as you would like.
4. Using the shift wildcard will enter appropriate shift in mark.



Using Shifts in Your Layout

1. Create your text entity in the layout.
2. Insert the shift code %S wherever you want the shift name to appear.



The software will automatically determine the active shift based on the system allocated time and print the corresponding shift name during marking.

Downloading Shift Settings to the Controller

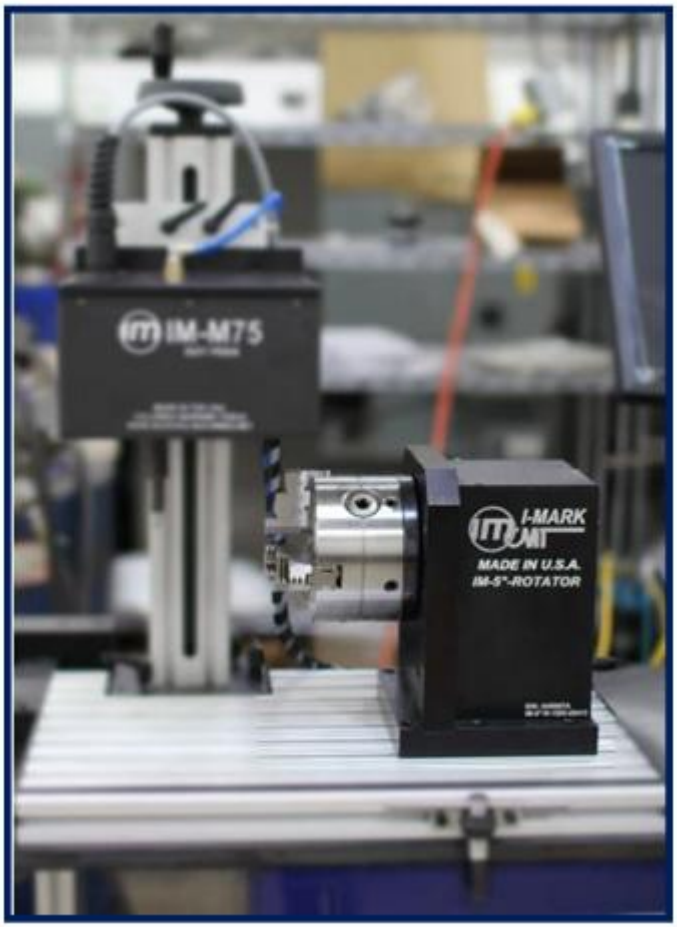
1. Navigate to the **Controller Page**.
2. Click **Download** to save the layout and shift settings to the controller.

3. Once downloaded, the software will reference the time you allocated for each shift and automatically apply the correct shift during production.

Best Practices

- Ensure the system's time matches your actual production schedule.
- Use meaningful shift names that make sense when printed on parts.
- Always download the layout after creating or modifying shifts to ensure proper synchronization.
- Verify the %S code is correctly placed in your text entities before marking.

Using the Rotator

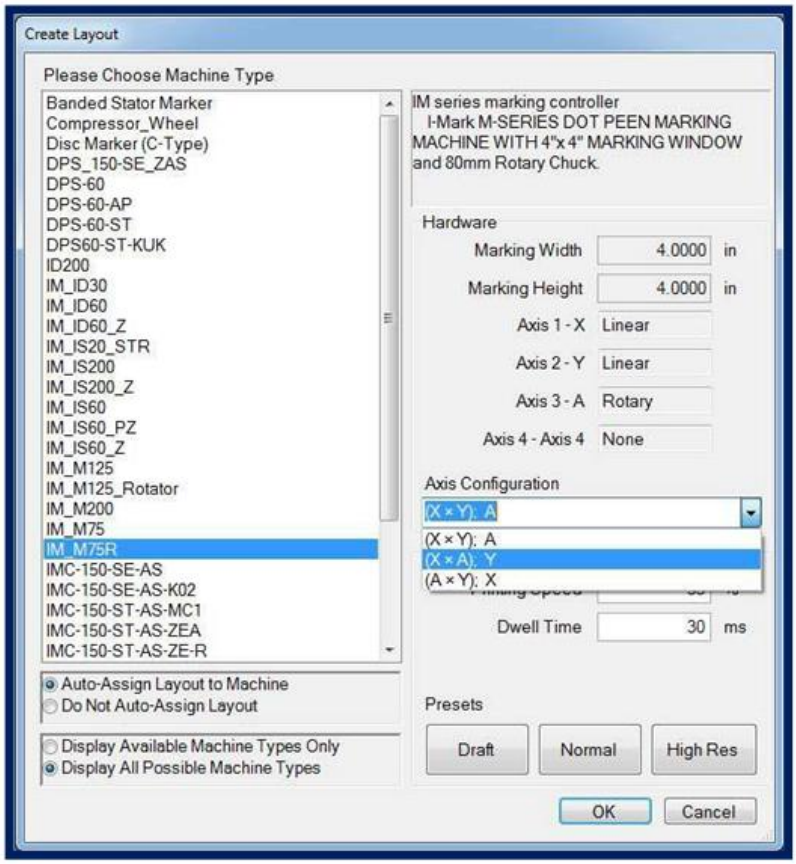


Creating a layout with the Rotator enabled.

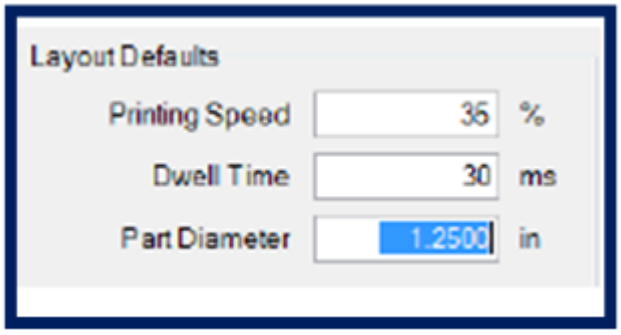
From the “Home” Menu select the “Create New Layout” button in the software.

On the “Create Layout” dialog choose your marker type from the list on the left and then on the right side of the screen. Choose the Axis configuration whose Axis in Parenthesis contain X and A.

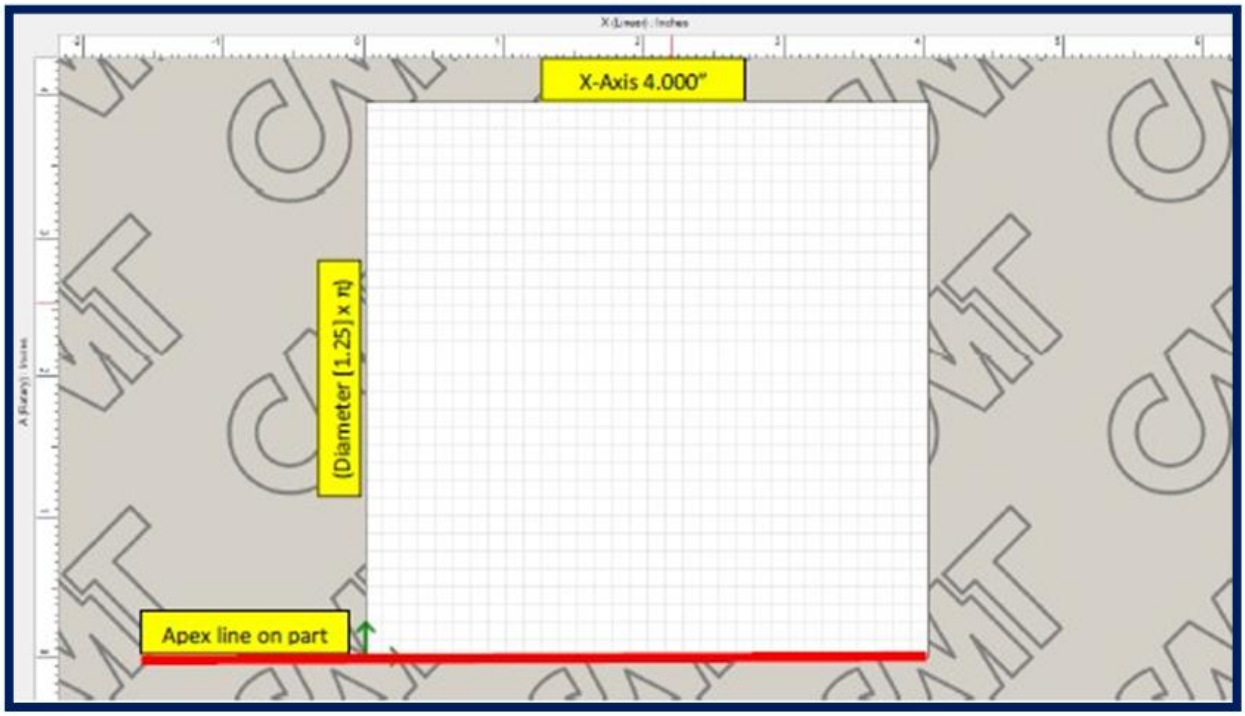
NOTE: The axis within the parenthesis will be the two designated axis used for the drawing of the layout. All additional axis listed in the configuration will be available as positional axis only.



After you've selected a configuration, whose axis is a rotary type (A in this case), the dia- log will show a hidden field for the Part Diameter. This data in this field must be entered correctly to ensure that the scaling of the marking around the circumference of the part is accurate.



NOTE: If your part has multiple surfaces with varying diameters, the diameter at or closest to the desired marking location should be entered here.



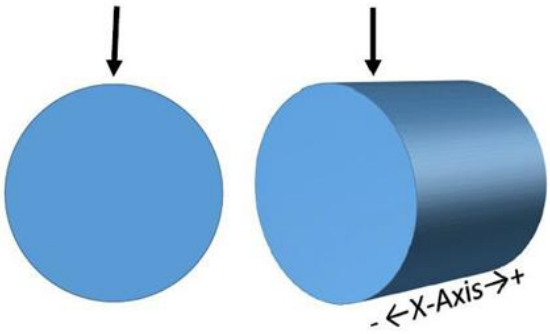
This is how the layout form will look if you've entered the same values I have in this example.

Horizontally is the X-axis and the vertical axis of this 2D layout is the A-axis. Its dimensions were calculated off the know X-axis travel distance of 4" and the calculated value of the part circumference (diameter [**1.25**] x π) = 3.9267 or roughly a 4x4 grid.

The bottom horizontal line of the grid represents the Apex of your part or the 12 o'clock position. This position must be taught for the Y-axis to ensure that the program will begin marking directly over top of the part.

Start by adding a text entity to your part. The program will drop the text automatically into the center of the layout grid.

Now located along the bottom of your software window is a tab named "Manual". Move your cursor overtop of this tab to enable it to slide-out. This tab will allow us to jog the physical axis on the machine in order to teach the current position of the mark- ing axis to the text or any other desired entities in the program.

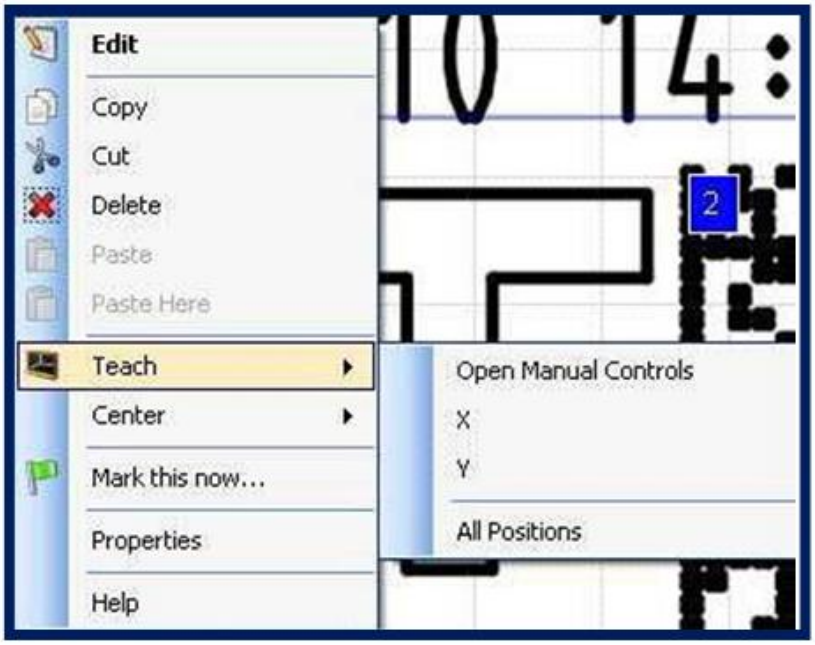


Jog the X-axis → until the marking pin is over top of the marking area you're desiring to mark. Then jog the Y-axis ↓ to bring the pin directly overtop at the Apex or 12 o'clock position of the part.

Then when the pin is directly over top of the desired marking surface, select your text entity tab on the marking layout and right-click on it to show the context menu.

Select "Teach → All Positions".

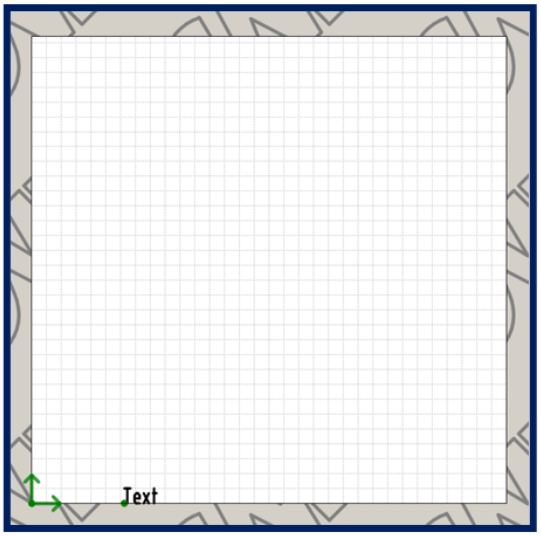
After setting the position of the text to be equal to the current position of the marking axis, you'll see that the text on the grid has moved to the relative position of the axis.



The current position is X = .7800, Y = 1.3248, A = 0.000

With the text in this current orientation moving horizontally, the marking head

will rotate the part only slightly to draw the vertical motions of the character Height and the X-axis will move to draw the horizontal motions of the character Width. This will result in the marking along the part as such.



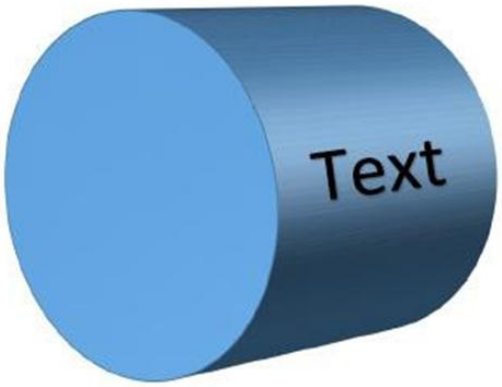


Image shows the part rotated after marking to show location of text.

If you flip the orientation of the text entity to be written vertically as shown here then the marking will occur around the part using the A-Axis for the majority of the motion drawing the horizontal movement of the character Width and the X-axis will move small motions drawing the vertical height of the character Height.

The resulting mark from this orientation will be as such. Finally to do multiple text entities, just ensure that each one following the initial has the exact same Y-axis coordinate to make sure that the pin stays directly over top of the part.

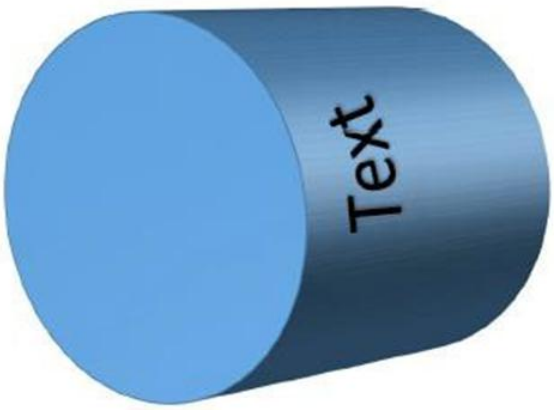
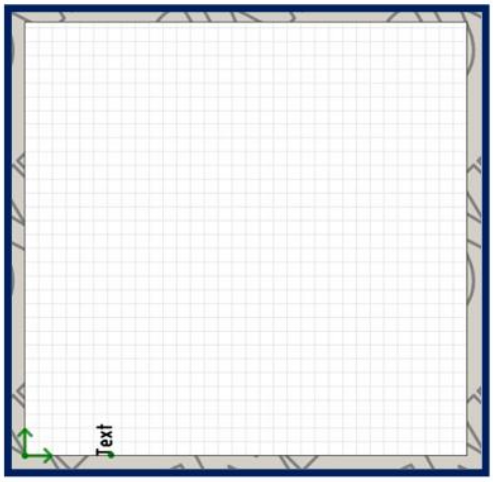


Image shows the part rotated after marking to show location of text.



Communications

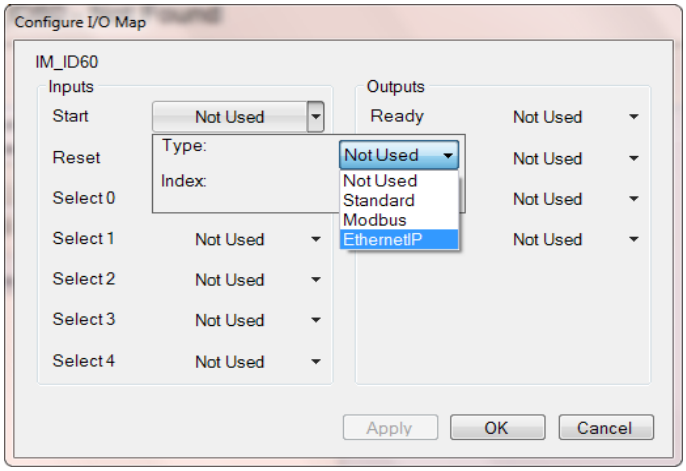
Setup I-Mark for Ethernet/IP Communication

Step 1: Controller Setup

When the EtherNet/IP Mode has been activated, the I-Mark Controller will be constantly monitoring a Control Register which allows you to remotely control the marking machine over EtherNet/IP. Similarly, the I-Mark controller will be updating a local Register at a very high rate with a Bitwise Value of the Machine's status. The I-Mark software contains a dialog which allows the user to map what standard controller functions you'd like to the available bits within the Control and Status Bytes.

The following is an instructional document which will help you in setting up the I-Mark controller for EtherNet/IP Mode.

Once connected to the controller through the I-Mark Software, the controller will show up under the Navigation pane on the lower left side of the software. You can double click on controller listed in here or if you select it, the Ribbon menu across the top will change to this controller specifically and you can select "Open Marking Machine". With this screen you can modify the parameters of the machine as well as get the full status and live feed of what the machine is doing.



1. With the ribbon still highlighted on your controller page, there is an icon which looks like a Green and Red arrow opposing each other….

This button will open a dialog to allow you to configure the I/O's of this controller.

This dialog will allow you to map the function listed to the left with the desired I/O index number and medium you would like to control it with. So for your configuration, you are going to go through each of these items and change their “Type” to Ethernet/IP and then make sure the index number below it is unique.

A basic setup should look like this chart here.

Inputs		
Start	EtherNetIP: 0	Bit 1
Reset	EtherNetIP: 1	Bit 2
Program Select 1	EtherNetIP: 2	Bit 4
Program Select 2	EtherNetIP: 3	Bit 8
Program Select 3	EtherNetIP: 4	Bit 16
Program Select 4	EtherNetIP: 5	Bit 32
Program Select 5	EtherNetIP: 6	Bit 64

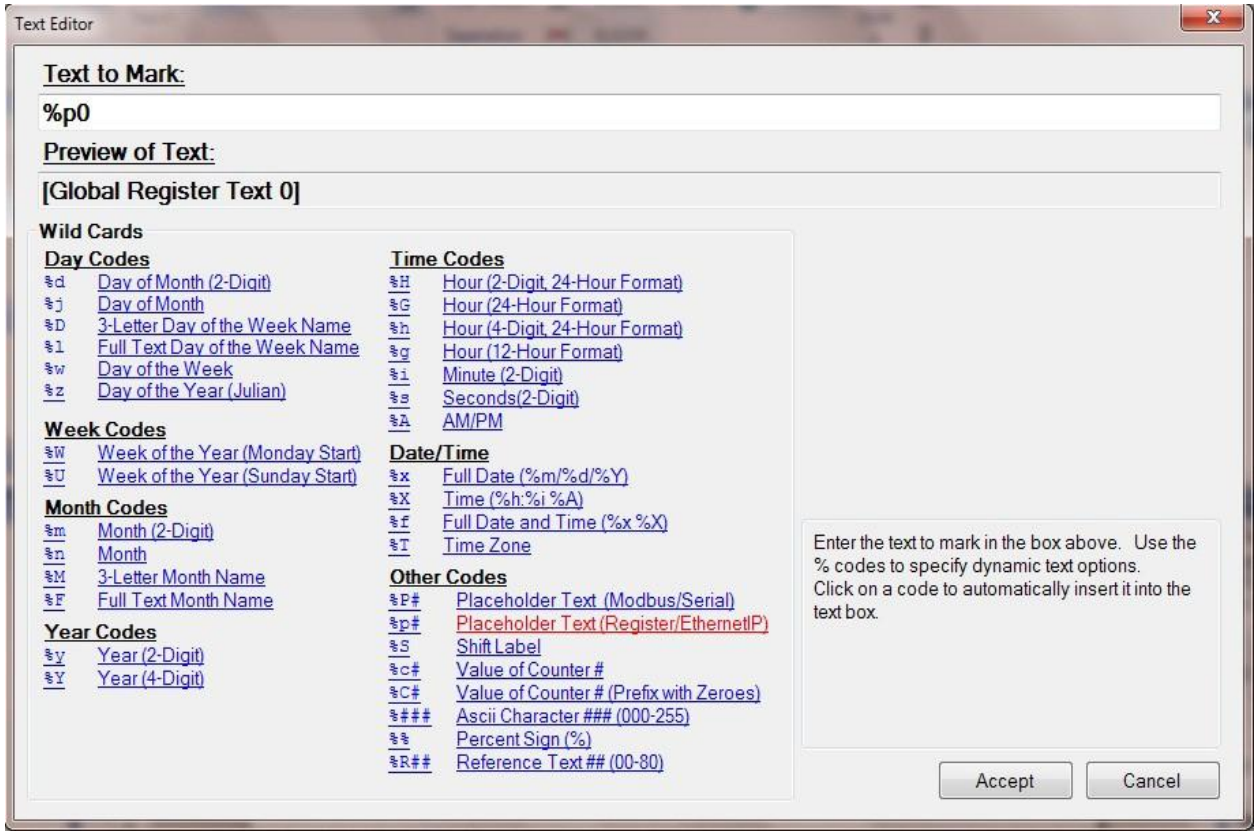
Outputs		
Ready	EtherNetIP: 0	Bit 1
Marking	EtherNetIP: 1	Bit 2
Completed	EtherNetIP: 2	Bit 4
Fault	EtherNetIP: 3	Bit 8

1. Once you’ve configured it to be this way, press OK to apply and save this configuration to the workspace.

Step 2: Create a Layout with EtherNet/IP placeholder

1. Go back to the Home tab and click “Create New Layout”. It will ask you what type of machine you want to create a layout for, if you’re directly connected to the machine there will only be 1 listed there (IM_ID60) just select this and click OK.
2. Now you can see the Layout which appears to look like a grid, this is the physical marking window for the machine. To add a new text object which will print data received from the PLC over Ethernet/IP, click on the “Layout” tab at the top and single click on the button which says “Text”.

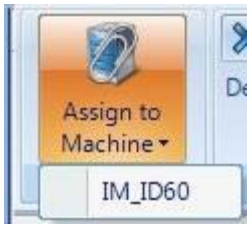
This button will drop a text entity into the center of the layout which reads simply “Text”. You modify this entity by double clicking on it which opens up a new dialog for editing the text entity. Delete the sample “Text” in the top field and then look down at the different codes available for dynamic data. One of the codes is labeled “Placeholder Text (Register/Ethernet/IP)”. You can click directly on this text or type in %p0 to the Text to Mark field as shown here.



Now press **Accept** to apply the change to the Text entity. The text within the layout will say “Global Register Text 0" as this is just a simulation to illustrate that we are waiting for data to appear in order to mark it here because the register at this time is empty.

Step 3: Assign Layout to the controller.

1. Click directly on the layout to activate the layout tab on the ribbon,



2. Click on the button labeled "Assign to Machine"

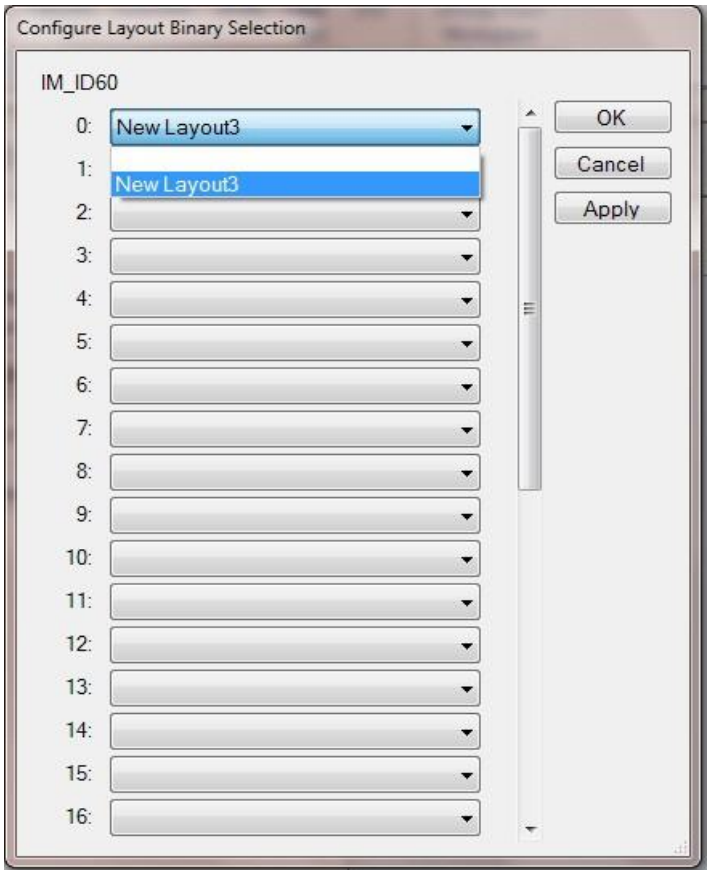
    - Click on the machine listed below this button which corresponds to the name of the machine you're currently working with. This will assign the currently layout to this machine so when a download occurs it will synchronize.

3. Save the Layout by going to the "Home" tab and select "Save Layout"

Step 4: Set Layout as active layout for marking.

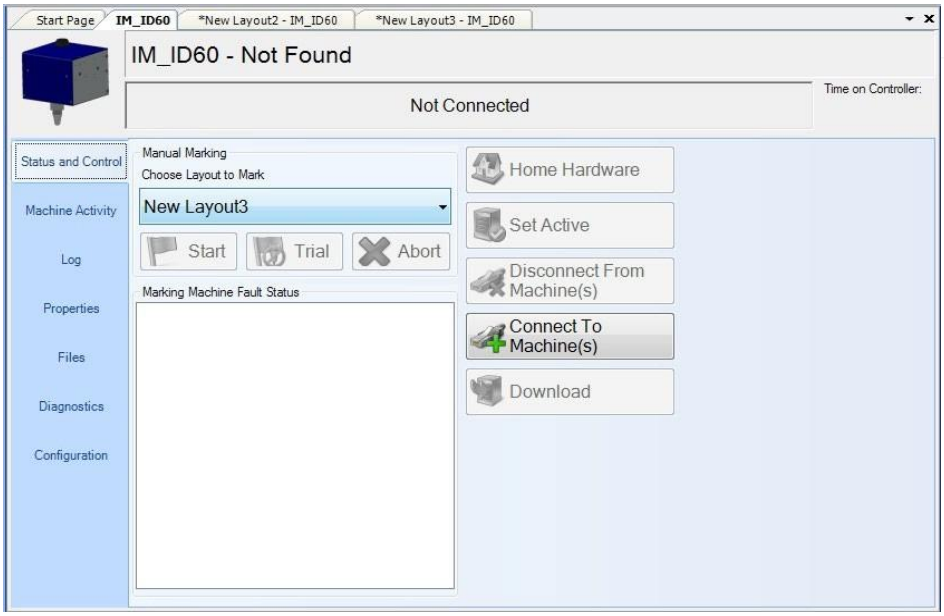
1. Click the tab on the toolbar named after the controller you are working on. On this ribbon will be a button called "Layouts" click it

    - Clicking this button will open up a dialog for you to assign layouts to a specific binary assignment. Set the layout you just created as the



Step 5: Save and download the configuration to the controller.

1. Navigate to the Setup and Control tab within the Controller Page.



2. Click on the Download button to save all of your Layouts and configuration to the controller's memory.

3. After the progress is completed, you may now disconnect from I-Mark

Controlling I-Mark over EtherNet/IP

Input Control Register:

To execute the function assigned to the binary index, perform a bitwise calculation and enter the Sum of the binary values into the Input Control Register. The next time this register is polled by the controller for its value, the controller will execute the command(s) requested.

Example: To tell the controller to "Start" marking, write the value of **1** to the Input Control Register. Then when the register is polled for its value, the controller will initiate the marking sequence for the layout assigned to "0" in the previous section.

Example 2: If you have assigned multiple layouts to Select Number using the Layouts dialog, put the value of **1** for "Start" command plus the value of **4** for the Select 1 command. So the Input Control Register will have the integer number **5** commanding the marker to Start marking using Select 1.

Each time I-Mark receives a new value, the controller will clear the previous out first before writing the new value into it. If the Control Register still contains the "Start" command after the marking is completed, the marking head will not return to home until the start bit is = 0.

Output Register:

The Output Control Register will function in a similar manner to the Input Control Register. The marking controller will provide a status in the form of a Bitwise value which will be read by the PLC for current marker status. Like the Input Control Register, the output will likewise be updated at a frequency of 1ms depending on the current process being executed on the I-Mark Controller.

Example: Using the chart above, when the marking controller is in a **Ready** state, the first byte be equal to the value of 1. Similarly, if there is a fault within the marking controller, the value of **8** will be present in the Output Control register.

Placeholder	
%p0	Register. 300-319
%p1	Register. 320-339
%p2	Register. 340-359
%p3	Register. 360-379
%p4	Register. 380-399
%p5	Register. 400-419
%p6	Register. 420-439
%p7	Register. 440-459
%p8	Register. 460-479
%p9	Register. 480-499

as

Placeholder 0
Placeholder 1
Placeholder 2
Placeholder 3
Placeholder 4
Placeholder 5
Placeholder 6
Placeholder 7
Placeholder 8
Placeholder 9

Writing Marking Data to the I-Mark Controller:

The I-Mark controller will accept ASCII integer values in specified placeholder registers to be used marking data for your layout. These registers are global, which allows them to be used in multiple layouts without outside intervention. The I-Mark memory

utilized 32-bit integer registers to hold this marking data similar to the Input and Output Control Registers. Within the I-Mark software itself you can create an entity known as a "Placeholder" which will utilize this local data to be marked within the layout. The place holder is capable of a maximum 80 characters of information with each character using 8 bits or 1 byte of data. Remembering that our registers can hold 32-bits of information, each placeholder would occupy a total of 20 Integer Registers for holding that data. The I-Mark software allocates these Integer Registers for the assigned placeholders in the follow locations.

Once the layout which utilizes any of these registers is executed, the I-Mark controller will look at the value of the corresponding register and print what was found within it. If a register is programmed within a layout but does not contain any data, there will be a corresponding error message within the controller producing a Fault (Output Control Register Bit.

Marking Machine Menu

Controller Download

This icon is located in the Marking Machine Menu Ribbon. This ribbon is only available when a marking machine is opened in the Main Work Area. When selected this command will update all the layouts assigned to the controller with the most recent saved layouts on the PC.

While a number of marking machines may be opened, the selected machine will be the associated with the name on the Marking Machine Menu Ribbon Tab. In addition, this system will be highlighted and opened in the Main Work Area.

Files on the controller may also be updated by dragging and dropping in the Navigation Window.

In addition, a layout file on the controller may be edited directly in the controller. This is accomplished by double clicking on the layout file associated with the marking machine in the Navigation Window.

Controller Upload

This icon is located in the Marking Machine Menu Ribbon. This ribbon is only available when a marking machine is opened in the Main Work Area. When selected this command will upload all the layouts that reside on the controller to the PC.

While a number of marking machines may be opened, the selected machine will be the associated with the name on the Marking Machine Menu Ribbon Tab. In addition, this system will be highlighted and opened in the Main Work Area.

Files on the controller may also be updated by dragging and dropping in the Navigation Window.

In addition, a layout file on the controller may be edited directly in the controller. This is accomplished by double clicking on the layout file associated with the marking machine in the Navigation Window.

Warning messages may appear if the Marking System is set to run a layout file that is an **earlier revision** than the version currently stored on the system. Essentially a warning will appear if you have not saved and downloaded your newest verison of the selected layout.

Controller Clock

This icon is located on the Marking Machine Menu Ribbon. This ribbon is visible once a marking machine has been selected in the navigation window, and is opened in the Main Work Area. When selected this command will synchronize the clock on the selected marking machine to match the PC clock.

While a number of marking machines may be opened, the selected machine will be the associated with the name on the Marking Machine Menu Ribbon Tab. In addition, this system will be highlighted and opened in the Main Work Area.

Assigning Layout to Marking Machine

This icon is located in the Marking Machine Ribbon. This ribbon is visible once a marking machine has been selected in the navigation window, and is opened in the Main Work Area.

While a number of marking machines may be opened, the selected machine will be the associated with the name on the Marking Machine Menu Ribbon Tab. In addition, this system will be highlighted and opened in the Main Work Area.

A drop-down menu will appear and display all additional layouts from the PC available to be assigned to the machine.

- The layout must reside in the I-Mark data directory located: ...Program Files\I_Mark_x_x_x (where the small "x"s are the version numbers).
- The layout must have the same marking machine type as the marking machine selected.

If a required layout does not appear check the layouts location on the PC, and the marking machine type assigned to it.

In addition to the Assign Layout icon, I-Mark software also allows for a "drag and drop" method to assign layout to marking machines. This is done by using the navigation window. Click on the layout required and "drag" to the marking machine.

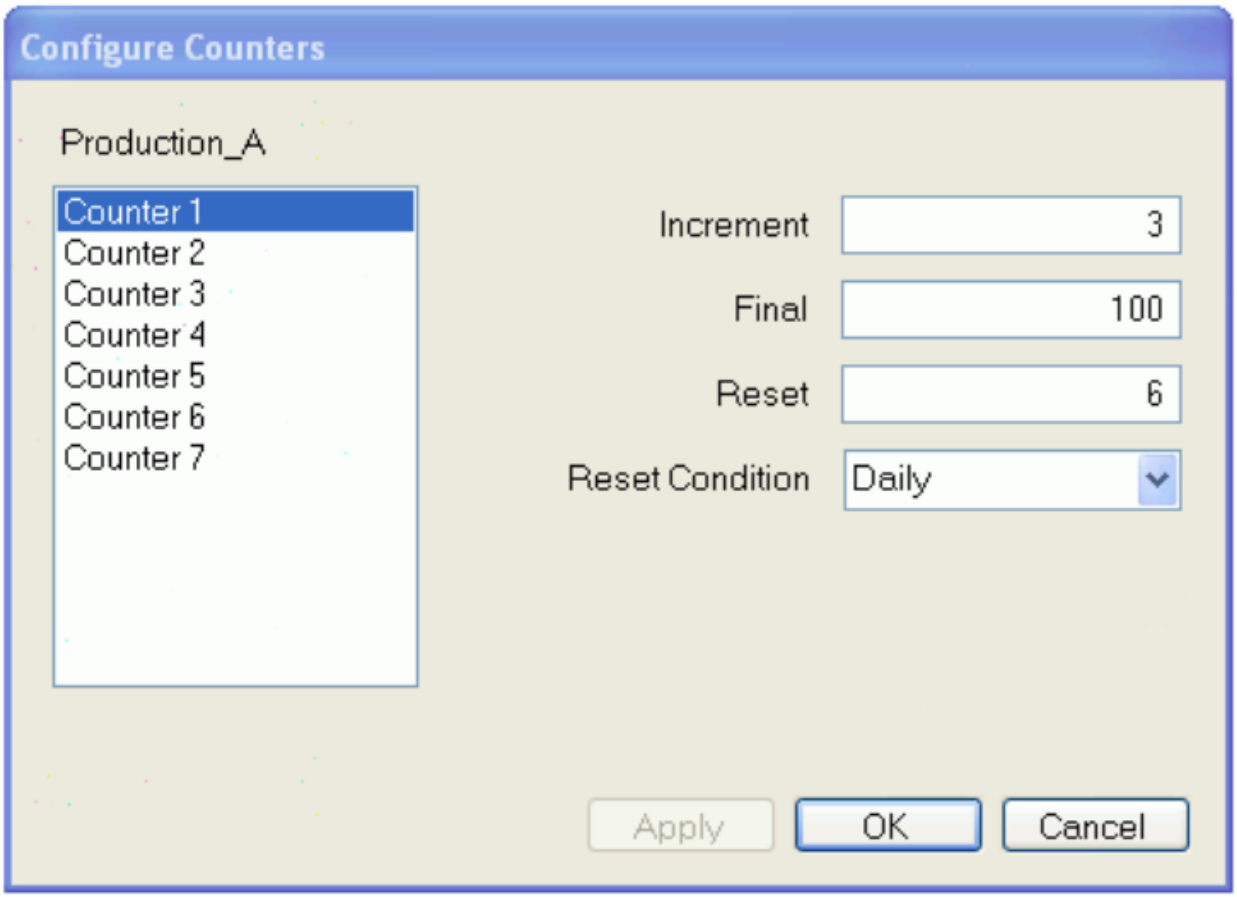
If this symbol continues to appear when you drag layout over marking machine, check to make sure that the layout machine type matches the marking machine type of the desired machine.

Counter Configuration

This counter configuration icon is located on the Marking Machine Menu Ribbon. This ribbon is only available when a marking machine is opened and selected in the Main Work Area.

While a number of marking machines may be opened, the selected machine will be the associated with the name on the Marking Machine Menu Ribbon Tab. In addition, this system will be highlighted and opened in the Main Work Area.

When selected the following configuration widow appears.



Counter List: List of counters in the marking machine.

Increment: Value the counter changes each time the machine is cycled.

Final: the value at which the counter will stop.

Reset: The number which the counter will reset to

Reset Condition: If set to NONE, the counter will not reset. If set to FINAL, the counter will reset when it reaches the final value. If set to DAILY, the counter will reset at the end of each day. If set to END OF SHIFT, the counter will reset at the end of each shift. This command is paired with the Shift configuration.

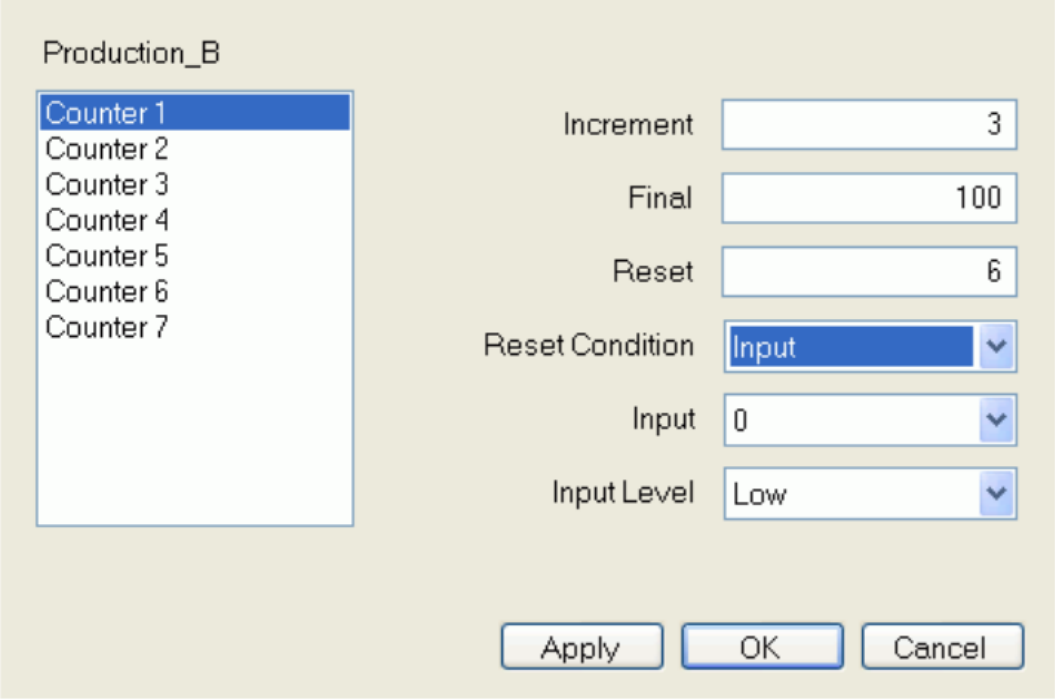
When INPUT is select as a reset condition additional fields will display.

Input: Requires a I/O number form 1 through 7, and relates to the I/O position in the Controller.

Input Level: This option is specified as either low or high.

Additional information about the counters in the marking machine is located on the Status & Control Tab of the marking machine in the Main Work Area.

Currently the standard counter does NOT have the functionality for counting down, having negative values, or numeric type other than integers.



Programing Your Marking - Marking Specifics

Congratulations by this section you should have the Layout with the mark you are about to make.

Teaching Your Machine

Teaching the Machine (Setting the Marking Position)

Teaching the machine establishes the relationship between the marking layout (software) and the physical part positioned under the marking head. The layout represents the machine's printable area—not the actual part. Teaching synchronizes the layout coordinates with the real-world X and Y motor positions so the mark is placed correctly on the material.

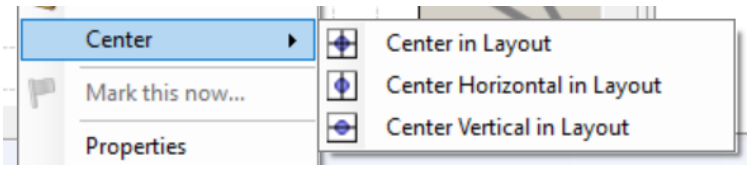
Preparation

1. Ensure your layout is open and all required entities (text, logos, etc.) are placed in the layout.
2. Each entity displays a **green reference point**:
    - Bottom-left corner by default.
    - Center point if the center function was used.

This reference point determines the entity's position on the material. If the green

reference point is located at the center of the entity, and the marking head is taught to that location, the center of the entity will be placed at that exact position on the material.

By default, marking starts from the bottom-left corner of the entity unless otherwise configured.

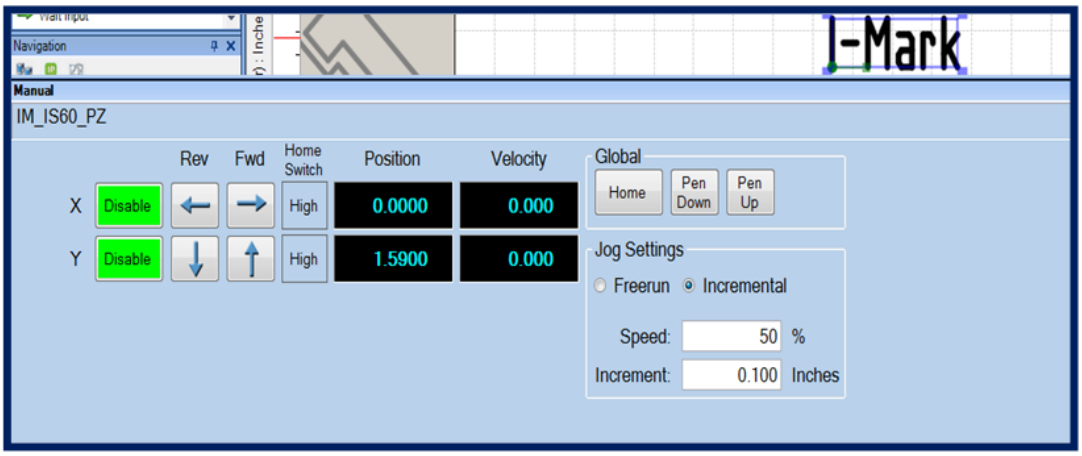


Manual Teaching Procedure

1. Open Manual Control

1. Double-click the entity in the layout to activate the **Entity tab** in the ribbon.
2. Click the **Teach** icon.
3. From the dropdown menu, select **Manual Control**.

This opens the manual jogging controls for the marking head, using the arrows.



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2. Jog the Marking Head to the Desired Location

Using the X and Y axis controls:

1. Jog the **X-axis** until the marking pin is positioned over the desired starting point on the part.
2. Jog the **Y-axis** to align vertically with the intended marking location.

Continue adjusting until the marking pin is precisely positioned where the first character (bottom-left reference point) should begin on the part.

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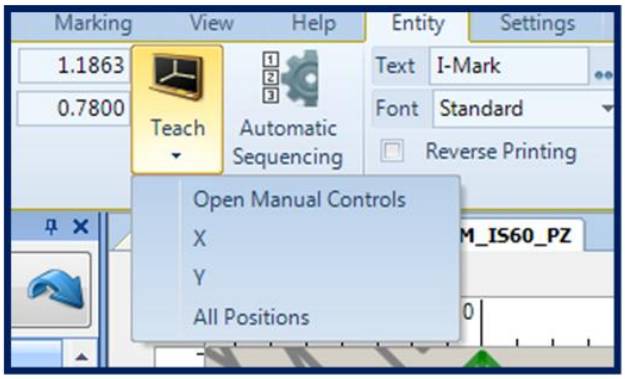
3. Apply the Taught Position



Once the marking head is correctly positioned:

1. Return to the **Entity tab**.
2. Click the **Teach** icon again.
3. Select **All Positions** from the dropdown menu.

This action:

- Captures the current X-Y motor position.
- Updates the entity's position within the layout.
- Synchronizes the layout coordinates with the physical part location.

You will see the entity shift within the layout grid to reflect its newly taught position.

Result

The entity is now properly aligned between:

- The layout coordinate system (software)
- The machine's motor positions (hardware)
- The physical part on the fixture

When the marking cycle runs, the text or entity will begin at the taught location on the material.

Key Notes

- The layout is a representation of the printable field—not the physical part.
- The reference point sets where the entity will appear on the material, with the green point marking the entity's reference point.
- Always verify part placement before teaching.
- If the part or fixture position changes, the entity must be re-taught.

This process ensures accurate and repeatable marking placement.

Adjusting Speed

Setting Global and Entity-Specific Speeds

The I-Mark software allows different marking speeds to be assigned to individual entities within a layout. This feature enables optimization of both cycle time and mark quality.

For example, in a layout containing standard text and a 2D Data Matrix code:

- Text can be marked at a higher speed to reduce cycle time.
- The Data Matrix can be marked at a lower speed to improve clarity and scanner readability.

Global Speed

The **Global Speed** defines the default marking speed for the entire layout.
All entities will run at this speed unless an entity-specific speed is applied.

To Set the Global Speed

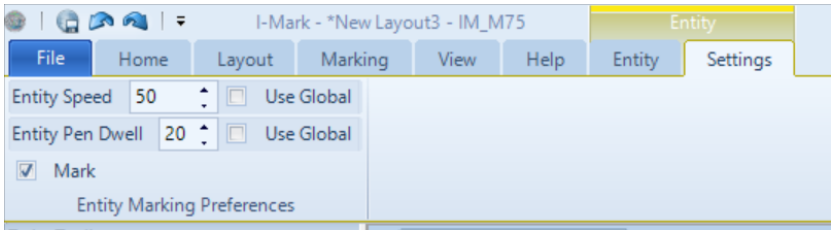
1. Click on the **layout background** (not on an entity).
2. Access the speed setting in the layout properties.
3. Adjust the speed value as required.

This speed will apply to all entities that have the Global option enabled.

Entity-Specific Speed

An entity-specific speed overrides the Global Speed for that particular object.

To Set a Speed for a Specific Entity



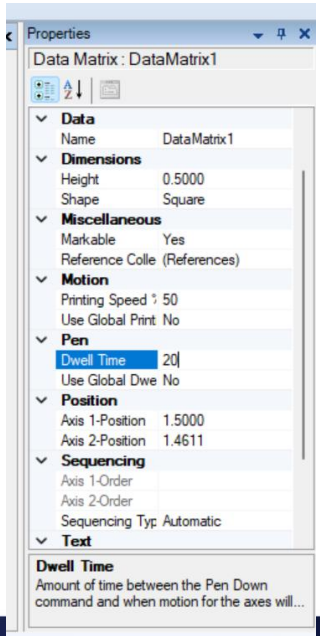
1. Select the desired entity in the layout.
2. Open the **Settings** tab in the Ribbon menu.
3. Uncheck the **Global** option.
4. Enter the required speed value.

The selected entity will now operate at the specified speed while other entities continue to follow the Global Speed (unless individually overridden).

Entity Dwell

The **Entity Dwell** property adds a controlled pause after each movement while drawing a character. This can be adjusted in the properties function of the I-Mark software.

Purpose of Entity Dwell



This setting is useful when:

- Operating at high marking speeds.
- Portions of characters appear incomplete.
- Mark quality begins to degrade due to insufficient pin impact time.

By increasing dwell:

- The marking head pauses briefly after each movement.
- Character definition improves.
- Mark consistency is enhanced.

Operational Considerations

- Use higher speeds for simple text to reduce cycle time.
- Use lower speeds for complex geometries (e.g., 2D Data Matrix codes).
- Increase dwell if characters appear light, broken, or inconsistent.
- Avoid excessive dwelling, as it will increase total cycle time.

Proper use of Global Speed, Entity-Specific Speed, and Entity Dwell allows optimization of both productivity and marking quality.

Download and Save

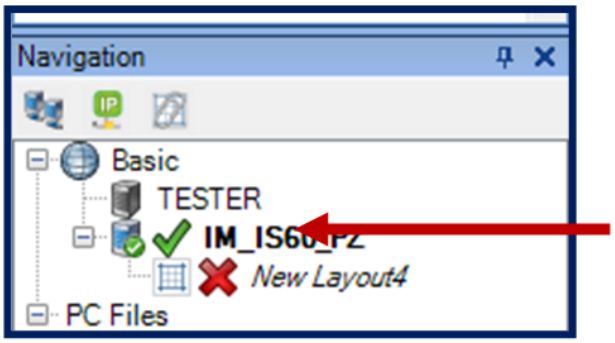
Downloading and Saving the Layout to the Controller

After defining all marking parameters—such as coordinates and speed—the layout must be downloaded to the controller before production marking begins.

Although live streaming is possible from the active marking window, it is best practice to download and save the layout to the controller to ensure stability and repeatability.

Access the Controller Page

1. Select your machine in the **Navigation pane**.
2. Open the active controller window.



In the Navigation pane:

- A **green check mark** indicates the layout

and controller are synchronized.

- A **red X** indicates changes have not yet been downloaded.

Download and Save the Layout

1. From the controller page, click the **Download** button.
2. The system will prompt:
    - “Do you want to save all fields before downloading?”
3. Select **Yes**.

This ensures that:

- Speed settings
- Taught coordinates
- Entity-specific parameters
  are saved prior to transfer.

Rename and Save the Layout

After confirming the save:

1. A **Save Layout As** dialog will appear.
2. Enter the desired layout name.
3. Click **Save**.

The layout will now begin downloading to the controller memory.

Download Process and Status Indicators

During the download:

- The marking window status will display **Not Initialized**.
- The controller transfers the layout and configuration data.
- After completion, the machine will perform a **home routine**.

Once complete:

- The status banner will display **Ready**.
- The Navigation pane will show a **green check mark** next to both:
    - The layout
    - The machine

This confirms that:

- The layout was successfully downloaded.
- The controller and software are synchronized.
- The system is ready for marking operations.

Best Practice

Always download and save the layout before production marking to ensure:

- Correct parameter retention
- Proper controller synchronization
- Reliable machine operation

Consequently, your I-Mark should automatically prompt you to save your layout.

Preparing Your Hardware for Your Software

Before executing a mark, it is essential to verify that your hardware is properly prepared. Even with perfectly configured software, improperly set up hardware will compromise mark quality. Columbia Marking Tools (CMT) requires marks to meet high standards, so taking the time to ready your machine ensures accuracy, consistency, and machine longevity.

1. Perform a Trial Run

CMT strongly recommends performing a **trial run** prior to marking actual parts. A trial run is identical to a standard marking operation, **except the marking tip is not engaged**.

Benefits of a trial run:

- Confirms the **placement and alignment** of your mark on the part.
- Verifies that the **motor parameters** do not reach their operational limits.
- Identifies potential mechanical or alignment issues before committing to production.

Procedure:

1. Ensure the layout and entities are correctly configured in your software.
2. Run the layout in trial mode.
3. Observe the machine movement and verify the X/Y positions align with your intended mark location.

---

2. Confirm Machine Settings and Status

Before marking, verify the following:

1. **PSI Settings:** Ensure the **air pressure (PSI)** matches the specifications for your machine and marking tip. Incorrect PSI can cause inconsistent marks or premature wear on the marking tip.
2. **Power Status:** Confirm that the machine is powered on and operational.

3. **Machine Selection:** Verify that the correct machine is selected in the software, especially if multiple controllers are available on your network.
4. **Maintenance and Care:** Check that the machine has been properly maintained according to the recommended schedule. This includes cleaning, lubrication, and inspection of moving parts and marking tips.
5. **Distance from pin to part:** Check in machine specific manual.

---

3. Additional Recommendations

- Make sure the part or fixture is securely positioned to prevent movement during marking.
- If using adjustable fixtures, confirm that they are tightened and locked in place.
- Keep the work area free of obstructions that could interfere with machine movement.
- Review entity placement in the software layout to ensure correct orientation and alignment with the physical part.
- Follow **all safety procedures** and PPE requirements for your specific machine.

Performing Your Mark – "Printing" Your Layout

Once your layout is prepared and your hardware has been verified, it is time to execute a mark on your chosen work surface. This section provides step-by-step instructions and safety guidance to ensure accurate and safe marking.

---

1. Save and Download Your Layout

Before marking, it is **critical to save and download your layout**:

1. **Download Layout to Controller:**
    - From the **Controller Page**, ensure your desired layout exists on the controller.
    - Downloading a layout saves it to the controller memory, allowing the machine to access it for marking.
2. **Save the Workspace:**
    - From the **File Menu**, save your entire workspace. This ensures that all layouts, settings, and associated files are preserved on the controller.
    - **Note:** Downloading only saves the selected layout; saving the workspace preserves the full set of layouts and machine settings.

---

2. Select a Layout

1. In the **Manual Marking** section of the Controller Page, locate the drop-down menu labeled **"Choose Layout to Mark."**
2. Select the layout you wish to run from the list of previously saved or downloaded layouts.

---

3. Trial Run vs Start Run

CMT strongly recommends performing a Trial Run before executing a Start Run, especially for new layouts or first-time operations.

- **Trial Run:**
  - Executes all programmed machine movements **without engaging the marking pin**.
  - Allows verification of:
    - X/Y positioning and alignment
    - Travel limits of the marking head
    - Programmed entity placement and spacing
    - Properly taught machine coordinates
  - No mark is applied to the workpiece.
- **Start Run:**
  - Initiates an **active marking cycle**, applying the programmed mark to the work surface.
  - Prior to Start, confirm:
    - The workpiece is properly secured using slates, fixtures, and appropriate mounting hardware.
    - The area is clear of hands, tools, or foreign objects.
    - All safety procedures and PPE requirements are in place.

Optional: If the PC or controller interface is unavailable, a CMT-purchased **external Start Button** can be used to initiate a Start Run.

---

4. Safety Guidelines

- Operators must wear **approved eye protection** and other required PPE.
- Only **trained and authorized personnel** should operate the machine.

- Hands, fingers, tools, or any foreign objects must never be placed inside the machine during active operation.
- All work holding, fixtures, and T-nuts must be properly secured.
- Follow all facility-specific and operational safety procedures.

Responsibility Statement:
Operators are fully responsible for safe machine use. The manufacturer is **not liable** for injuries, equipment damage, or lost production due to:

- Misuse of the equipment
- Unauthorized modification
- Inadequate training
- Failure to follow documented procedures

---

5. Handling Errors or Aborts

If the mark is not produced as intended, follow these steps:

1. **Abort the Cycle:** Use the appropriate control to immediately stop the machine.
2. **Review Settings:** Confirm the layout, parameters, and placement are correct.
3. **Perform a Trial Run:** Verify that adjustments resolve the issue before restarting the Start Run.

Machine Behavior After Abort:

- The machine will remain in an **aborted state** until **Home** is pressed.
- Pressing **Home**:
    - Returns the marking head to the default home position (maximum X, zero Y)
    - Clears any abort or fault conditions

Remember

- Always **save and download layouts** before marking.
- Perform a **Trial Run** before active marking for safety and accuracy.
- Ensure the **workpiece and fixtures** are properly secured.
- Follow **all safety procedures** and PPE requirements.
- Abort and troubleshoot immediately if the mark is not correct.

Appendix

FAQ

I-Mark Software FAQ

This FAQ addresses common questions about the I-Mark software, including installation, setup, operation, communication, and troubleshooting.

---

1. General & Getting Started

Q1: What is I-Mark software?
A: I-Mark is a professional industrial marking software package developed by **Columbia Marking Tools (CMT)**. It is used to create, edit, manage, and execute marking layouts for I-Mark dot-peen and scribe marking systems and serves as the primary control platform for these machines.

Q2: What are the minimum system requirements to run I-Mark?
A: The minimum requirements are:

- **Operating System:** Windows® 2000, XP, Server 2003, Vista, or Windows 7 (32-bit only)
- **Processor:** Pentium®-class CPU, 1 GHz minimum
- **RAM:** 512 MB
- **Video:** 65,536-color video card at 1024 × 768 resolution
- **Network:** 10/100 T-Base network card
- **Required Windows Components:**
    - .NET Framework 4.0
    - Microsoft Visual C++ 8.0
    - Windows Installer 3.1

Q3: What is the difference between Basic Mode and Advanced Mode?

A: When launching I-Mark, you must select an operating mode:

- **Basic Mode:**
  - Streamlined interface with essential marking functions
  - Recommended for **stand-alone marking machines**
  - Displays all available machines on the network
- **Advanced Mode:**
  - Intended for **system integrators and complex installations**
  - Enables the use of **Workspaces** to group and filter machines
  - Reduces clutter and improves organization in facilities with many controllers

---

Q4: How do I register my I-Mark software and obtain a permanent license key?

A: New systems include a 90-day temporary license. To obtain a permanent key:

1. Connect to your controller, open I-Mark, and navigate to **Diagnostics**.
2. Record the 8-character **Machine ID**.
3. Complete the online registration form: http://www.marking-machines.net/I-MarkRegistration.html
4. CMT will email a permanent License Key within one business day.
5. Return to **Diagnostics**, click **Update Key**, paste the key, and click **Submit**.

---

2. Layouts & Entities

Q5: How do I create a new marking layout?

A:

1. Go to the **Home** tab and select **Create New Layout**.

2. Choose your machine type from the list.
3. Do **not** modify the hardware dimensions (width and height).
4. Adjust speed or dwell settings as needed.
5. Select a preset (Draft, Normal, or High Resolution).
6. Click **OK** to create the layout.

Q6: What types of content ("Entities") can be added to a layout?

A: The following entity types are available from the **Layout** ribbon:

- **Text** – Alphanumeric characters
- **Graphics** – Imported logos or drawings (DXF format)
- **Lines** – Simple geometric lines
- **Data Matrix** – 2D codes for traceability
- **UID Code** – Codes compliant with standards such as MIL-STD-130N

Q7: How do I add dynamic text such as dates or serial numbers?

A: Use **Wild Cards** (dynamic placeholders) within a text entity:

- **Date:** %m/%d/%Y
    - Example: Date %m/%d/%Y → "Date 01/15/2024"
- **Counters:** %C1, %C2, %C3
- **Shift Name:** %S

Insert these by double-clicking the text entity and typing the desired code.

Q8: Can I import my company logo?

A: Yes. Logos must be imported in **DXF format**.

1. Go to **File** > **Import** > **Import DXF Graphic**.
2. Select the DXF file.
3. Set the **Arc Tolerance** (1–2000; lower values increase detail).
4. Save the graphic to the system library.
5. In your layout, click **Graphic** on the **Layout** ribbon and select the saved graphic.

Q9: How do I mark text in a circle or at an angle?

A:

- Select the text entity.
- Use the **Entity** ribbon to adjust:
  - **Angle** – Rotates the text
  - **Radius** – Curves the text along a circular path

---

3. Machine Setup & Operation

Q10: How do I connect I-Mark to my marking machine?

A:

1. Go to the **Marking** tab.
2. Click **Connect to Marking Machine**.
3. The software will scan the network and connect to the controller.
4. A green check mark next to the machine ID confirms a successful connection.

Q11: How do I teach the machine where to mark on my part?

A:

1. Double-click the entity to be positioned.
2. Go to the **Entity** tab and select **Teach** > **Manual Control**.

3. Use the on-screen jog controls to position the pin.
4. Return to **Teach** and select **All Positions** to update the layout.

Q12: What is the difference between a Trial Run and a Start Run?

- **Trial Run:**
  - Simulates the entire marking cycle
  - The pin does **not** strike the part
  - Used to verify positioning and travel limits
  - **Strongly recommended before every Start Run**
- **Start Run:**
  - Executes the live marking process
  - The pin engages and marks the part

Q13: Why should I download my layout to the controller?
A: Downloading stores the layout and all settings directly in the controller's memory. This ensures consistent operation even if the PC is disconnected and is considered best practice before production.

Q14: How do I adjust marking speed?
A:

- **Global Speed:** Select the layout background and adjust speed.
- **Entity-Specific Speed:**
  1. Select the entity
  2. Go to **Settings**

3. Uncheck **Global**
4. Enter a custom speed value

Q15: How do I set up a serial number counter?

A:

1. Open the **Counters** dialog from the controller ribbon.
2. Select a counter and define **Start**, **Final**, and **Increment** values.
3. Insert the counter placeholder (e.g., %C1) into a text entity.
4. Download the layout to the controller.

Q16: How do I configure shifts for automatic shift marking?

A:

1. Open the **Shifts** tab.
2. Click **Add**, name the shift, and set its start time.
3. Repeat for all shifts and click **Apply**.
4. Insert %S into the text entity.
5. Download the layout to activate the settings.

Q: How far should the pin be from the part? What about air pressure?

A: Set **pin-to-part distance** to roughly **0.188"–0.250" (3/16"–1/4")** and adjust system air pressure using the integrated regulator for a clean mark 30 to 60 psi.

---

4. Communication & External Control

Q17: Can the I-Mark system be controlled by a PLC?

A: Yes. The controller supports **EtherNet/IP** communication.

- Configure the controller I/O map for EtherNet/IP.
- Use uppercase PLC placeholders such as %P0.
- The PLC writes commands to the Input Control Register and reads status from the Output Control Register.

Q18: My machine will not connect. What should I check?

A: Verify the following:

1. PC and controller are powered on and on the same network
2. IP addresses are on the same subnet
3. Default controller IP is 10.1.10.225
4. Hardware and software versions are compatible

Q19: Can I start marking without a computer connected?

A: Yes, using the optional CMT **Start Button**.

1. Connect the 25-pin connector to the controller's **Input** port.
2. Assign a layout to **Slot 0** in the **Layouts** dialog.
3. Download the configuration to the controller.
4. Pressing the external button will run the assigned layout.

---

5. Troubleshooting & Maintenance

Q20: Mark quality is poor or inconsistent. What is the most likely cause?

A: In most cases, the marking stylus (pin) is worn, chipped, or damaged. Replace the stylus according to the maintenance instructions in the manual.

Q21: The system shows a “Key Expired” fault.

A: The 90-day temporary license has expired. Register the software and install a permanent license key (see Q4).

Q22: I-Mark displays a “Fatal Error” on startup. How do I fix this?

A: This is typically caused by a corrupted user database.

1. Close I-Mark.
2. Navigate to:
   C:\Users\[username]\AppData\Local\Columbia_Marking_Tools\
3. Delete the entire **Columbia_Marking_Tools** folder.
4. Restart I-Mark. The database will rebuild automatically.

Q23: How do I back up my layouts?

A: Two methods are available:

- **File Copy:**
  - Copy layout files from
    C:\Users\Public\Documents\I-Mark\Basic
- **Export:**
  - Go to **File** > **Export** > **Layouts**
  - Creates a compressed .cmtlx file

Q24: What should I do if a fault code appears?

A: Refer to the **Fault Codes** table in the Appendix of the main manual for detailed explanations and corrective actions.

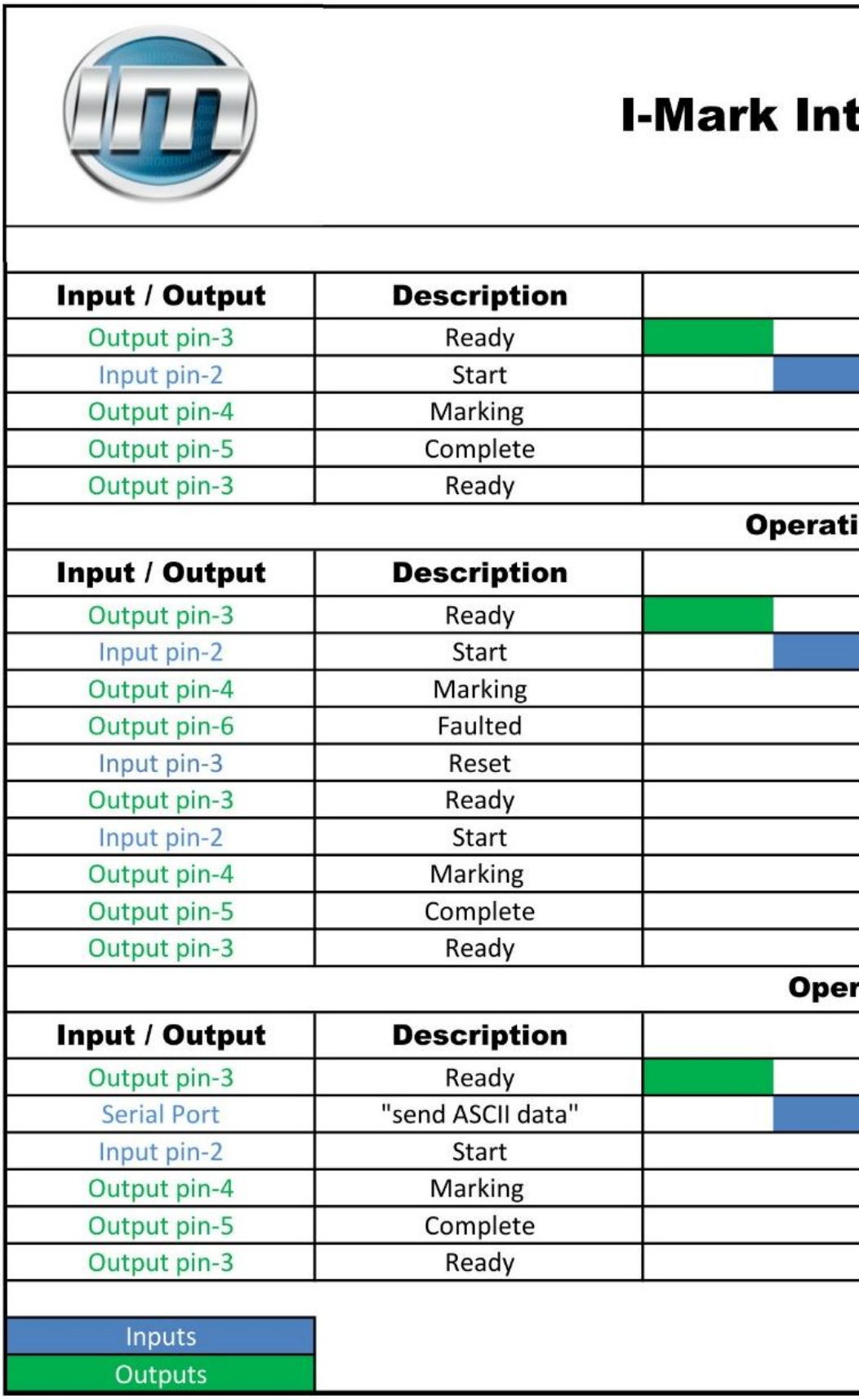
Suggested Integration Sequence

Three examples of integration sequence diagrams for I-MARK integration:

Standard Operation – I/O use for basic marking cycle.

Operation with Fault (E-Stop) and Recovery – Sequence including emergency stop event and system recovery process.

Operation with Serial Data Exchange – Standard operation including serial communication flow (use placeholders where necessary).



I-Mark Int

Input / Output	Description
Output pin-3	Ready
Input pin-2	Start
Output pin-4	Marking
Output pin-5	Complete
Output pin-3	Ready

Operati

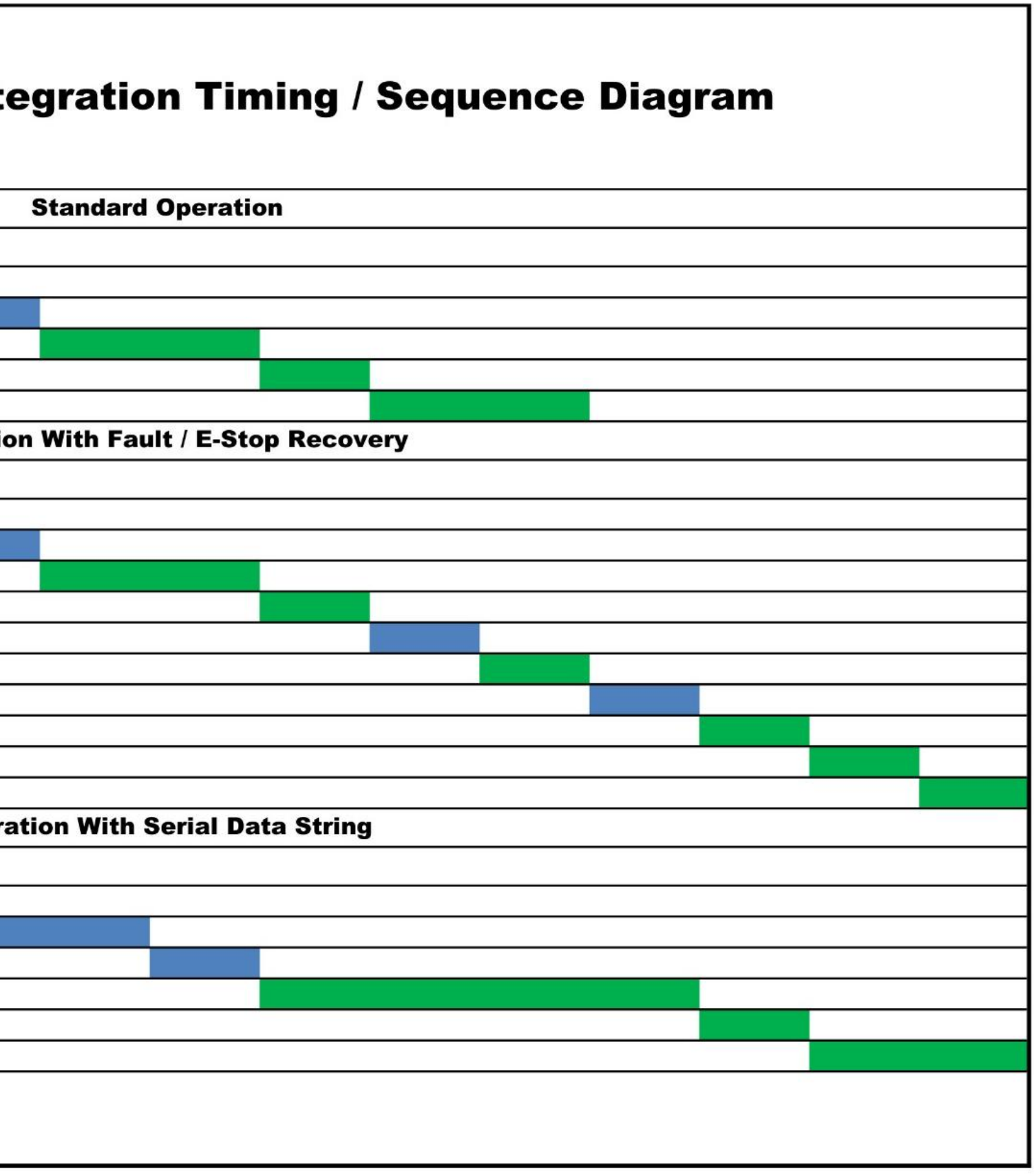
Input / Output	Description
Output pin-3	Ready
Input pin-2	Start
Output pin-4	Marking
Output pin-6	Faulted
Input pin-3	Reset
Output pin-3	Ready
Input pin-2	Start
Output pin-4	Marking
Output pin-5	Complete
Output pin-3	Ready

Oper

Input / Output	Description
Output pin-3	Ready
Serial Port	"send ASCII data"
Input pin-2	Start
Output pin-4	Marking
Output pin-5	Complete
Output pin-3	Ready

Inputs
Outputs

tegration Timing / Sequence Diagram



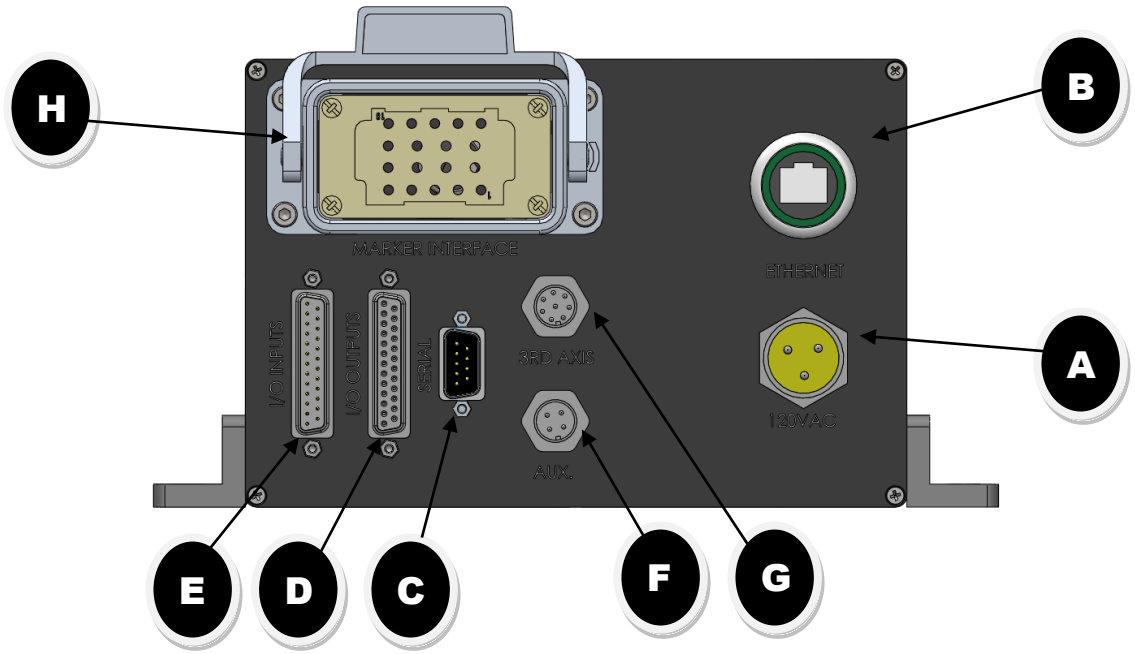


TABLE 1.0

ITEM	DESCRIPTION	TABLE
A	POWER CONNECTOR	1.1
B	ETHERNET CONNECTION	1.2
C	SERIAL DATA PORT	1.3
D	I/O OUTPUT CONNECTION PORT	1.4
E	I/O INPUT CONNECTION PORT	1.5
F	AUX. OUTPUT CONNECTOR (RESERVED)	CONTACT FACTORY
G	Z-AXIS CONNECTOR (OPTIONAL)	CONTACT FACTORY
H	MARKING HEAD INTERFACE CONNECTION	CONTACT FACTORY

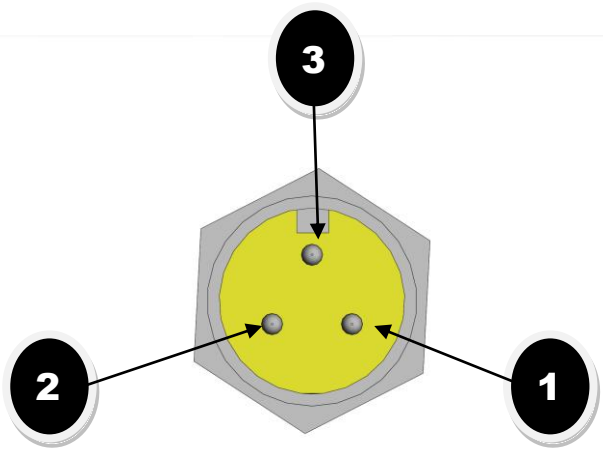


TABLE 1.1 POWER CONNECTOR

PIN	CONNECTION
1	LINE
2	NEUTRAL
3	GROUND
NOTE: The I-Mark Series-2 Controller Requires 120vac power and may draw up to 7.2a depending on the marking head you are controlling.	

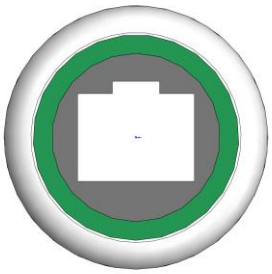


TABLE 1.2 ETHERNET CONNECTION

PIN	DESCRIPTION
1	ORANGE PAIR-2
2	
3	GREEN PAIR-3
4	
5	
6	
7	BROWN PAIR-4
8	

Note: The I-Mark Control can operate using a Static IP address or using DHCP mode. When connecting to the I-Mark control via a switch or network you should use a standard CAT5e cable. If connecting the I-Mark control directly to a PC or laptop you will need to use a CAT5e crossover cable.

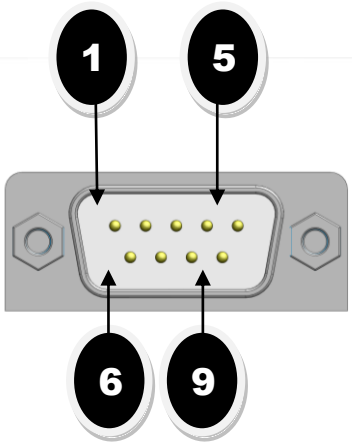


TABLE 1.3 SERIAL DATA PORT

PIN	RS232	PARAMETERS	
1	DCD	BAUDRATE	115200
2	RxD	FLOW CONTROL	NONE
3	TxD	PARITY	NONE
4	DTR	DATA BITS	8
5	GND	STOP BIT	1
6	DSR	NOTE: SEE EXAMPLE BELOW FOR SAMPLE STRING FORMAT.	
7	RTS		
8	CTS		

STRING FORMAT FOR SENDING ASCII DATA TO I-Mark PLACEHOLDER

NOTE: YOU CAN EDIT STRING CONFIGURATION IN I-MARK Config Tab

[:] “DATA TO BE MARKED” [CRLF]

START OF

DATA TO BE PRINTED BY MARKING

END OF

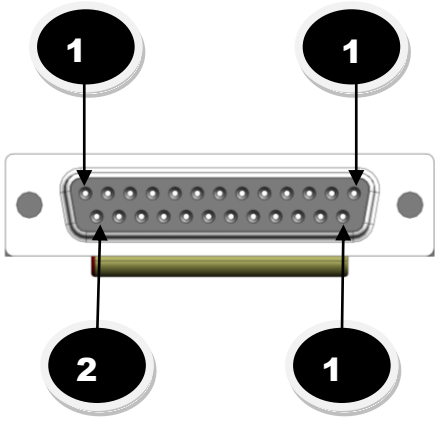


TABLE 1.4 I/O OUTPUT CONNECTIONS

PIN	DESCRIPTION
1	[24VDC] Common (Customer to supply.)
2	[0VDC] Common (Customer to supply.)
3	READY
4	MARKING
5	CYCLE COMPLETE
6	FAULTED
7	USER OUTPUT (programmable)
8	USER OUTPUT (programmable)
9	USER OUTPUT (programmable)
10	USER OUTPUT (programmable)
11	AUX. [24VDC] (.5a MAX)
12	AUX [0VDC] (.5a MAX)
13-25	RESERVED
Note: 80ma max draw per output	

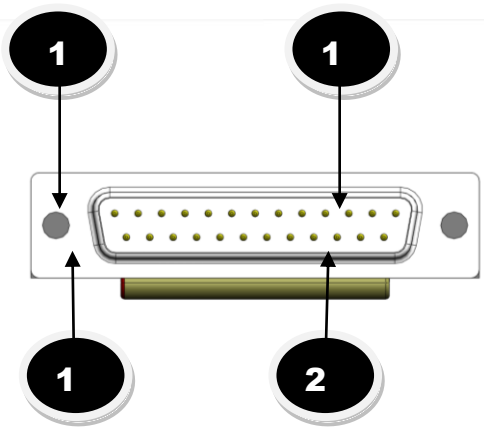


TABLE 1.5 I/O INPUT CONNECTIONS

PIN	DESCRIPTION
1	[0VDC] Common (pins 2-4) (Customer to supply.)
2	START
3	RESET
4	SELECT BIT-1 (BINARY)
5	SELECT BIT-2 (BINARY)
6	SELECT BIT-3 (BINARY)
7	SELECT BIT-4 (BINARY)
8	USER INPUT (programmable)
9	USER INPUT (programmable)
10	[0VDC] Common (5-9) (Customer to supply.)
13	E-Stop (must be held high for normal operation when this option is enabled)

Start Button

The **I-Mark Start Button** (sold separately by Columbia Marking Tools) allows a marking program to be executed repeatedly without interacting with the I-Mark software. This feature is ideal for production environments where a PC is not available during marking or when mouse and keyboard operation is not desired.

When pressed, the start button triggers the marking layout assigned to **Slot 0** in the controller.

Hardware Setup

1. Plug the **25-pin connector** into the back of the I-Mark Controller.
2. Ensure the connector is properly seated in the **Input and Output ports** as labeled on the controller.

Assigning a Layout to the Start Button

1. Open the **I-Mark software**.
2. Navigate to the **Controller** ribbon and select **Layouts**.
    - This opens the **Layout Configuration** dialog.
3. Use the drop-down menu to assign the desired marking layout to **Slot 0**.
    - When the controller receives a start signal from the external push button, it will execute the program assigned to Slot 0.

Activating the Configuration

1. After assigning the desired layout to Slot 0, navigate to the **Controller Page**.
2. Click **Download** to save the layout and start button configuration to the controller.

3. Once downloaded, pressing the start button will execute the assigned program.

Best Practices

- Always verify the correct marking layout is assigned to **Slot 0** before operation.
- Ensure all 25-pin connections are firmly seated in the correct input/output ports.
- Test the start button in a safe environment prior to full production use to confirm proper operation.

THINGS IN THIS SECTION ARE SUBJECT TO CHANGE IF YOUR FACTORY HAS DIFFERENT POLICIES FOR START BUTTONS SUCH AS HAVING AN ABORT BUTTON.

Configure I-Mark for Stream UI Plugin

The StreamUI plugin is designed to allow the user of I-Mark to select the program they wish to run from the User Interface and press an External Start button to run that selected program.

Depending on your use case, you may want to use the **Stream UI plugin**. This plugin **streams all layouts directly from the PC**, eliminating the need to **manually download and sync files** to the controller. In other words, it uses **all the files stored in the workspace** rather than relying on the files stored on the controller.

To activate the plug-in, let's start by opening Windows Explorer and navigating to your I-Mark Installation directory. Typically, this is C:\Program Files (x86)\I-Mark_x.xxx.xxx.xxx\

Open the "Plugins/Not Used" folder and copy the file named *"StreamUI.dll."*

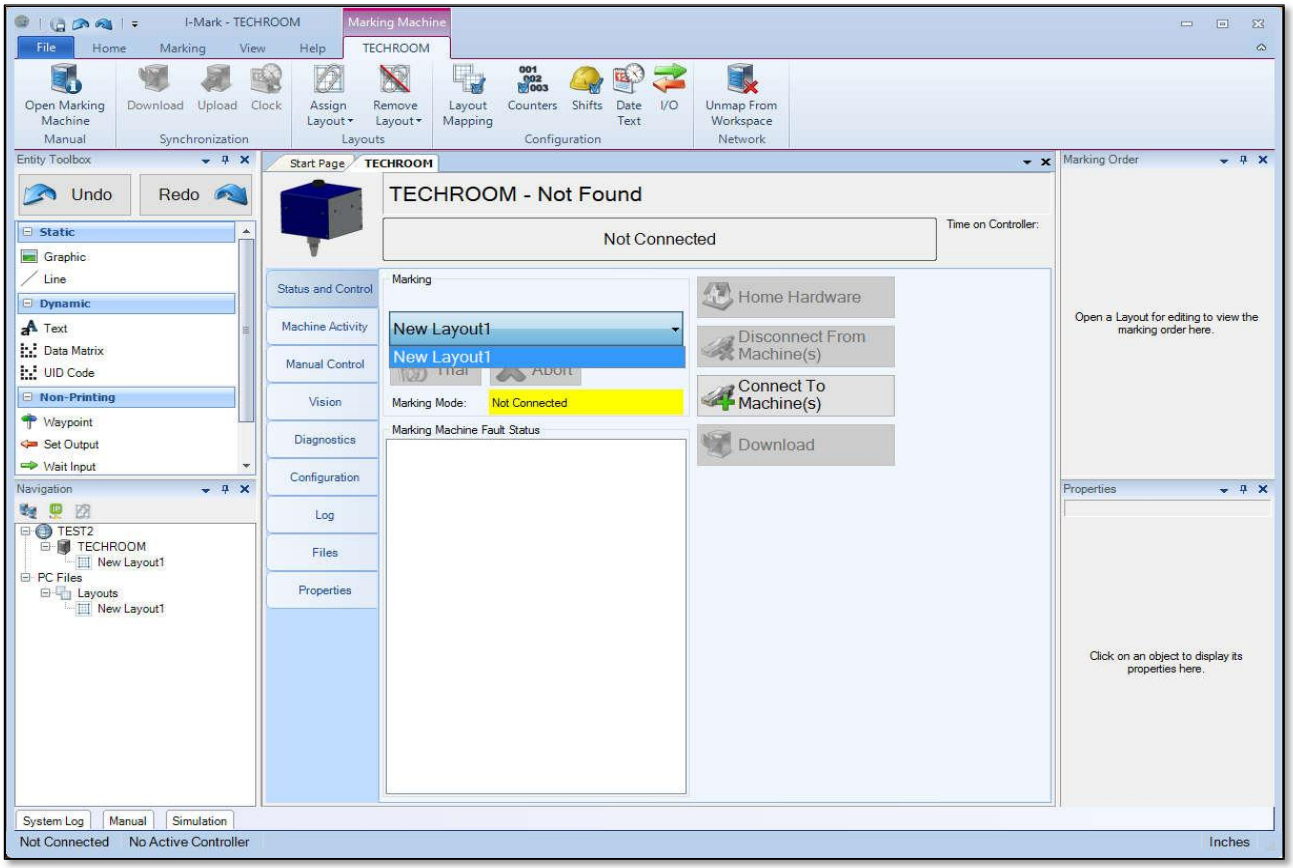
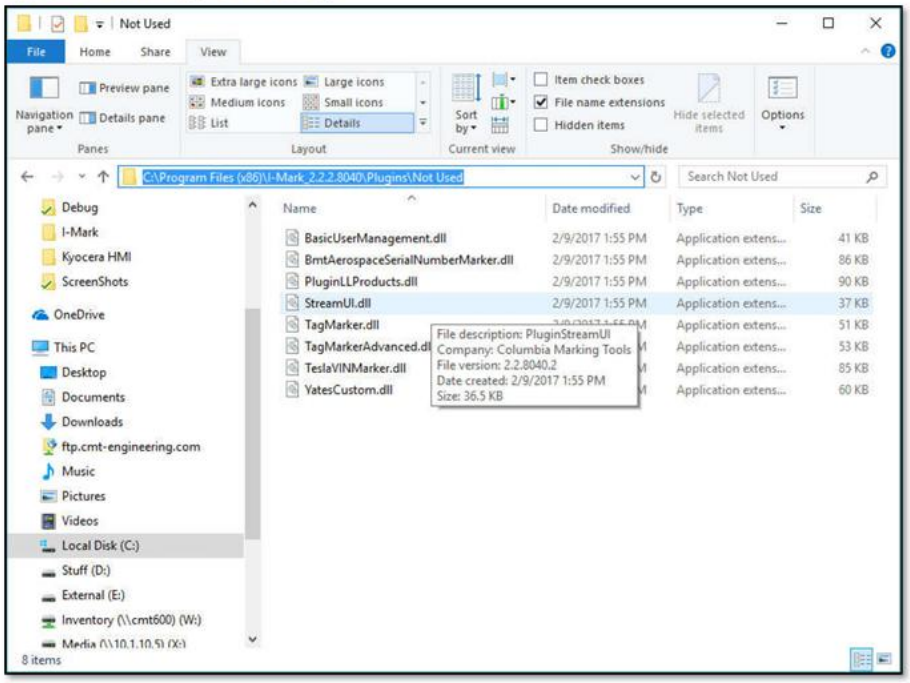
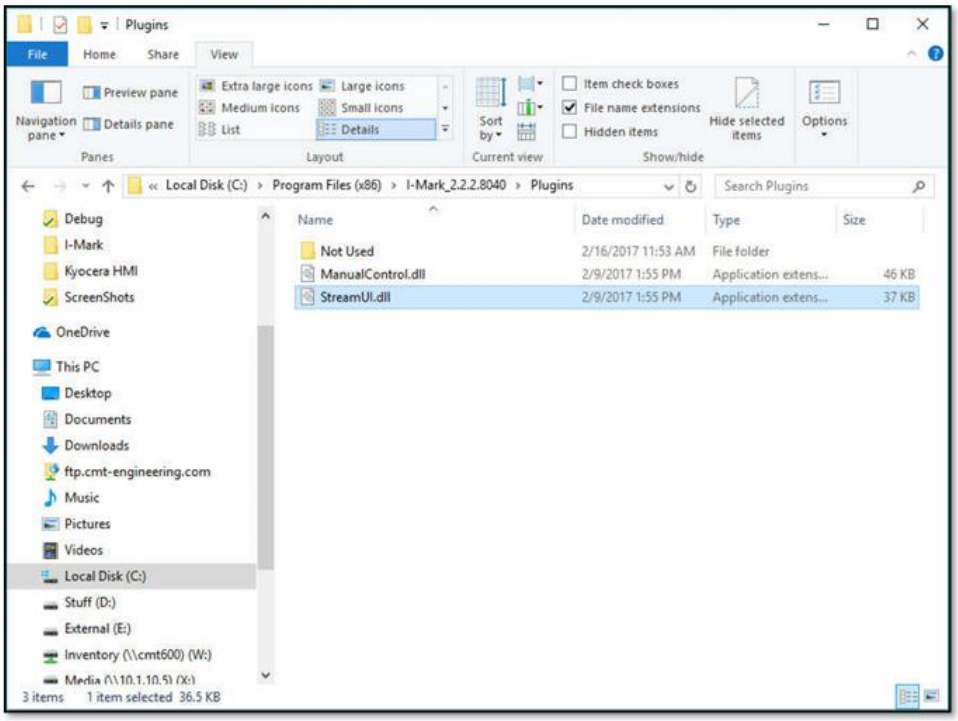


Figure 1: I-Mark Plugins Directory



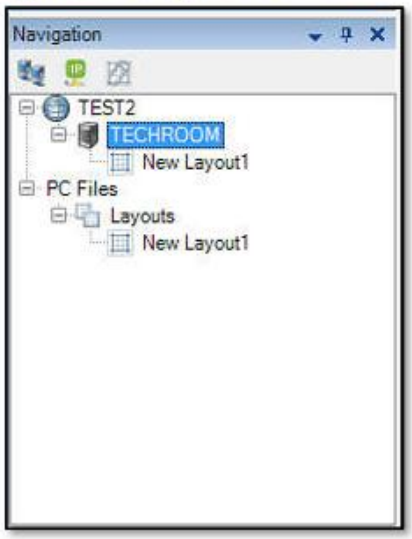
Move backwards one directory to the “Plugins” folder and paste the “StreamUI.dll” file here.

Figure 2: StreamUI.dll Plugin Installed



At this time, you can close Windows Explorer and open up the I-Mark software. When the I-Mark software is opened, Navigate to the controller page for the Marking System. This usually opens automatically for our M-Series (M75, M125) customers. However, if not you can open the controller page by Right Clicking on the Controller Icon for your machine found at the top of the “Navigation” panel.

Figure 3: Navigation Panel



After you have the controller page open in the center panel of the software, select the “IO” button on the Controller’s ribbon menu.

Figure 4: Ribbon Menu IO Button

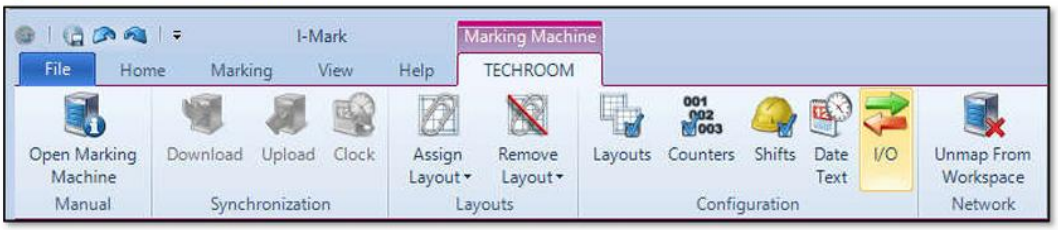
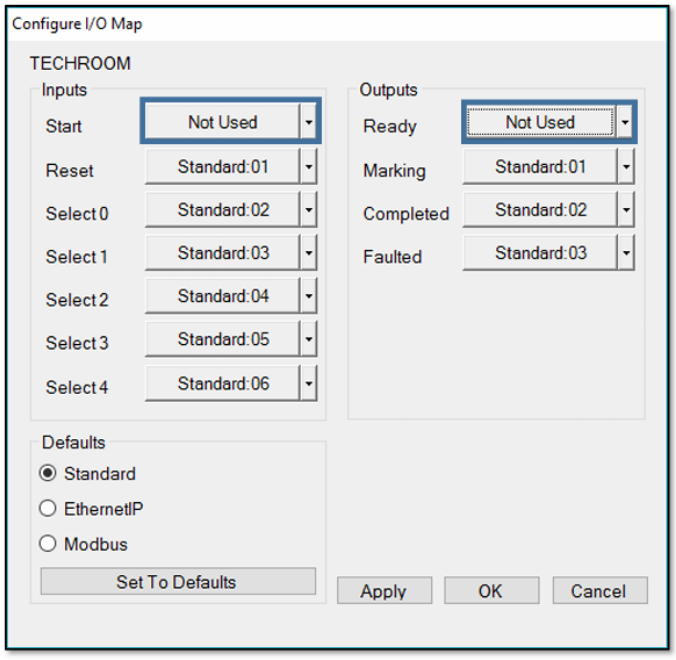


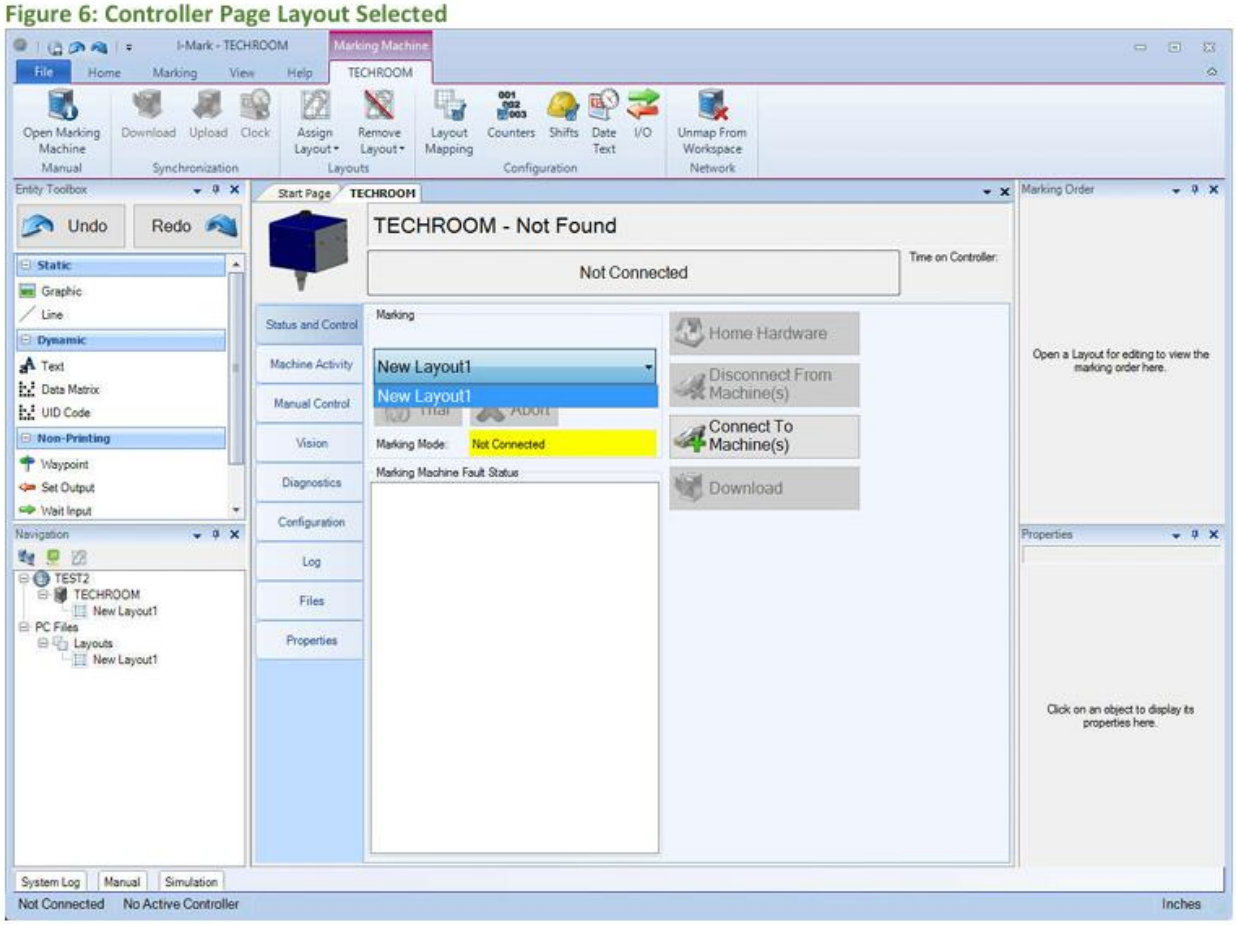
Figure 5: Configure I/O Map Dialog



Make the following changes to the I/O configuration in this page and press OK.

Once this is completed Press the “Download” button on the controller page to affect the changes into the controller. The controller will restart automatically after the download is completed. Once you select a marking layout from the “Status and Control” tab, the layout which is selected will now become the active marking layout. Anytime the controller receives a Start Input on the discrete I/O, the program which is selected will then begin marking.

Figure 6: Controller Page Layout Selected



It is no longer required for you to “Download” your layout selections, change the selected layout to your desired Layout for marking.

After you add a plug in a restart of the application may be necessary.

NOTE: This feature is only available while a computer is connected to the I-Mark controller. It cannot be used without a connected computer.

For any other questions or concerns, please contact CMT Service dept. At 1 (800) 4MY-MARK or by email, service@columbiamt.com .

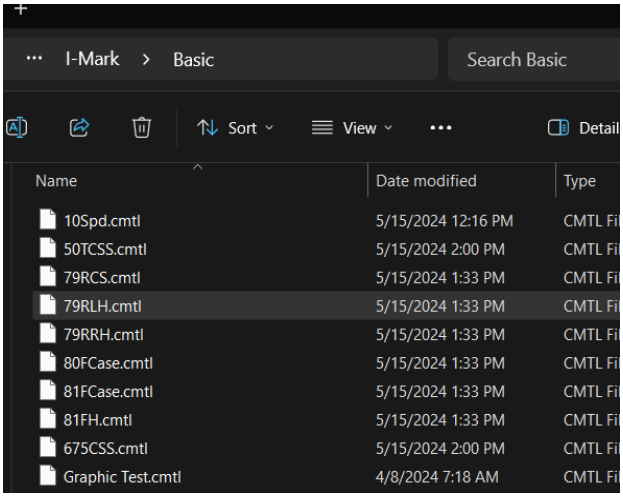
Backing Up your I-Mark Layouts

Regular backups of files is always important to aid in recovery from technical issues, but backing up your I- Mark Layouts is also a good way to move Layouts between multiple marking machines, if needed.

We recommend using a USB drive, but you can also back these files up to a network drive or just another folder on the same PC.

Method 1

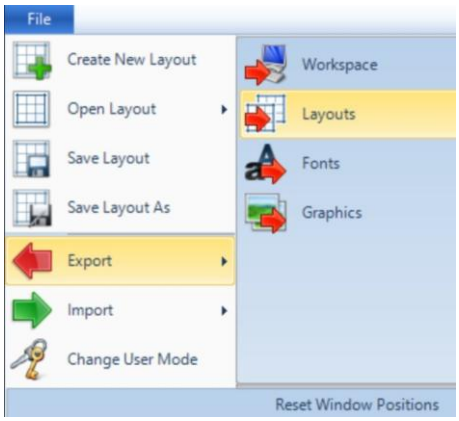
1. Open your File Explorer, and navigate to: C:\Users\Public\Documents\I-Mark\Basic



2. Select the layouts you want to copy by holding CTRL while clicking on each layout name (or click the fist layout, then hold SHIFT and click the last layout to select all)
3. You can either drag and drop the layouts onto your USB, or use your preferred copy/ paste method.

Method 2

1. Open I-Mark, select File > Extport >Layouts.
2. When the list pops up, select all layouts you wish to save and hit “OK,” then select a folder to save the export. You can name the exported file at this point, as well.
3. The. cmtlx file create is a compressed ZIP file that makes it easy to move the layouts from one PC to another. You can import this. cmtlx file with File > Import > Layouts in I-Mark.



Serial Data String

I-Mark can monitor the Serial Data register.

Depending on which version of I-Mark you are using, we give you the ability to change the data characters in the software so you can specify yourself which one I-Mark should be looking for in the serial string.

However, if you are not using I-Mark v 1.2.1.7 or Greater than the default setting for this would be as listed below.

Serial Communication Settings
Baud Rate: 9600
Data Bits: 8
Parity: None
Stop Bits: 1
Flow Control: None

By default, the terminating character for the starts of a data string is the Colon ":" then any data following that (Up to 80 characters) is what will be marked in the placeholder 0 (%p0 in I-Mark).

Then to terminate the string I-Mark will look for CR (Carraige Return [Dec 13 or Hex D]) and LF (Line feed [Dec 10 or Hex A]).

When you have the string formatted correctly then you should be able to send it to the I-Mark 1 time any as long as it is powered up and it will retain that string and continue to mark it when called until you send it new data which will overwrite it.

Configuring IP Address

Default IP Address

- All controllers ship with the default IP address:
  10.1.10.225

Option 1: Leave Controller at Default IP

If keeping the controller at its default IP:

- Change the **IPv4 settings on your PC** to match the controller's network

---

Option 2: Change the IP Address on the Controller

When operating multiple controllers in a cell, change the IP address **on the controller itself** using the I-Mark application.

If the Controller Cannot Be Reached

- On startup, I-Mark will display:
  "Error: Failed to connect to marking machine. Do you wish to set up the IP address of unreachable machines?"
- Click **Yes**

Ignore local and Wi-Fi connections. Focus on the **Ethernet adapter** or the **machine name** under Network Connections.

IP Setup Procedure

1. Highlight the **machine name** you wish to configure
2. Click **Modify**
3. Ensure **"Maintain IP address automatically"** is **unchecked**
4. Select the appropriate **network adapter**
5. Click **Suggest Values**
    - This aligns the controller's IP with the selected network adapter

- Alternatively, you may manually assign an IP

Manual IP Assignment Guidelines

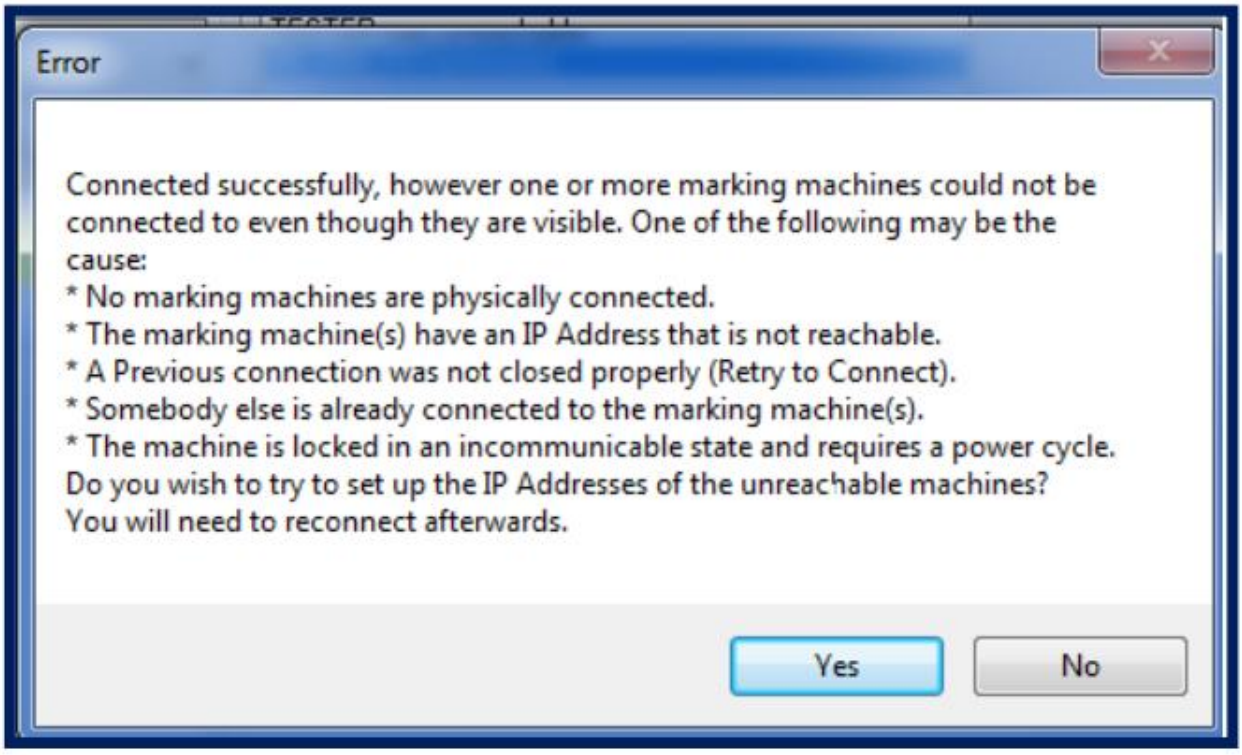
- Use: **10.1.10.xxx**
- The final number should be **within the range of 1 to 254**
- The **PC network adapter IP and controller IP must NOT be identical**, or connection will fail

Subnet mask and default gateway may be adjusted if required.

Your IT or controls department can assist with advanced network configurations.

IP Error

If your network is not matching up with your computers IP address you will receive an error message, if you get the message you will need to modify your computers local area connection.



Select yes to obtain the machines current IP address and suggested local values.

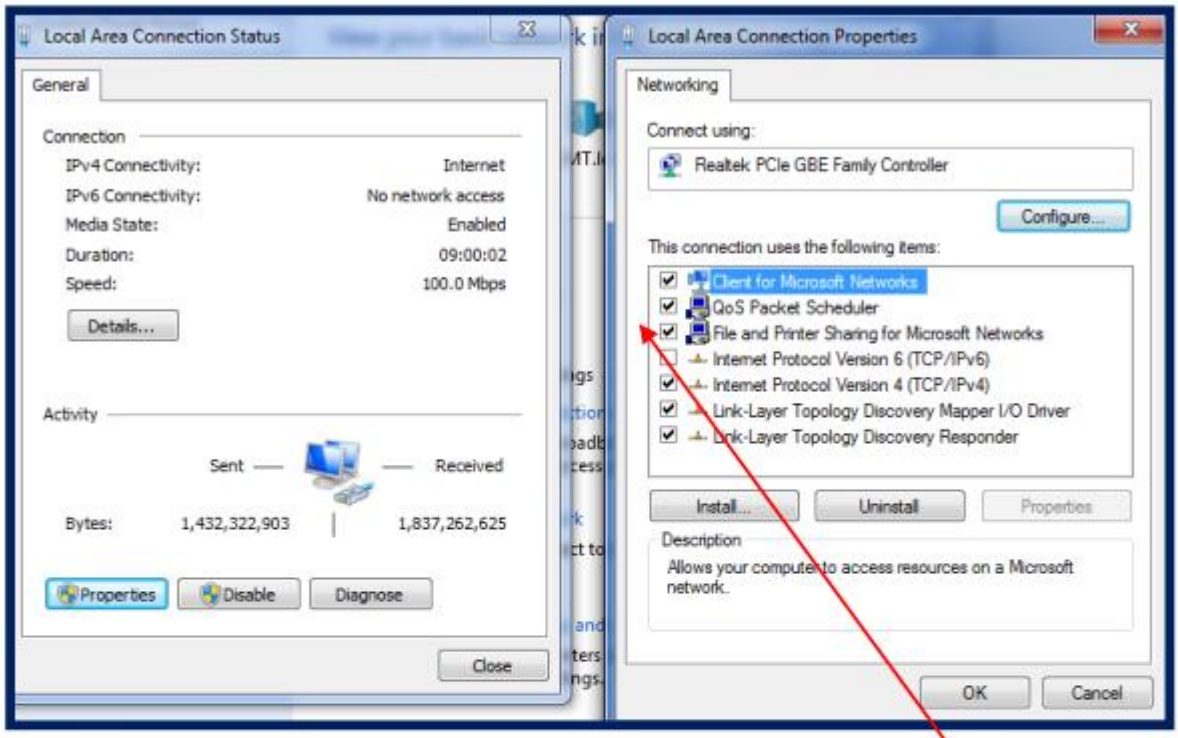
If you are connecting your marker to a network that is already configured modify the controller only to match existing network configuration.

If your computer is NOT on an existing network you need to change the IP address of the local area connection.

The controller ships with the following IP address set already 10.1.10.225.

A recommended setting for your local are connection would look like 10.1.10.226

You will need to go into your computers network settings and modify.

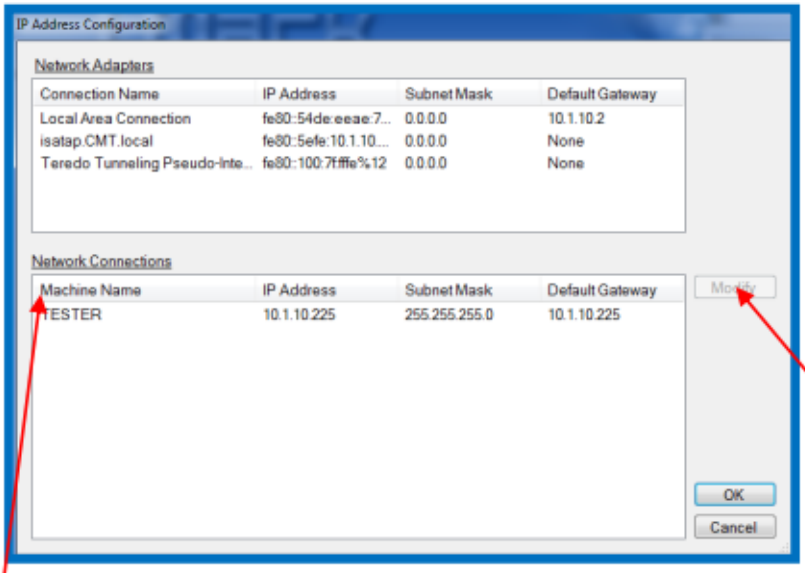


Open your local area connection.

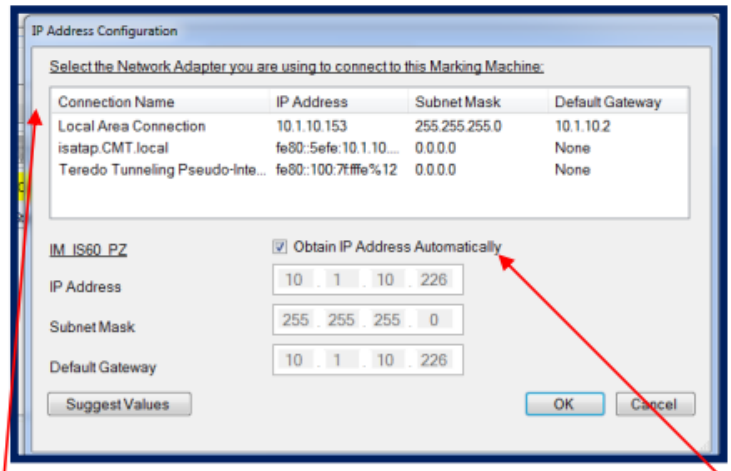
Next select properties to open your Local area connections properties.

Now uncheck the box next to internet protocol version 6(TCP/IPv6)

Select ok and return to the I-Mark Program.



Select your machine under network connections and select modify.



After selecting Modify.

Select Local Area Connection so it becomes highlighted,

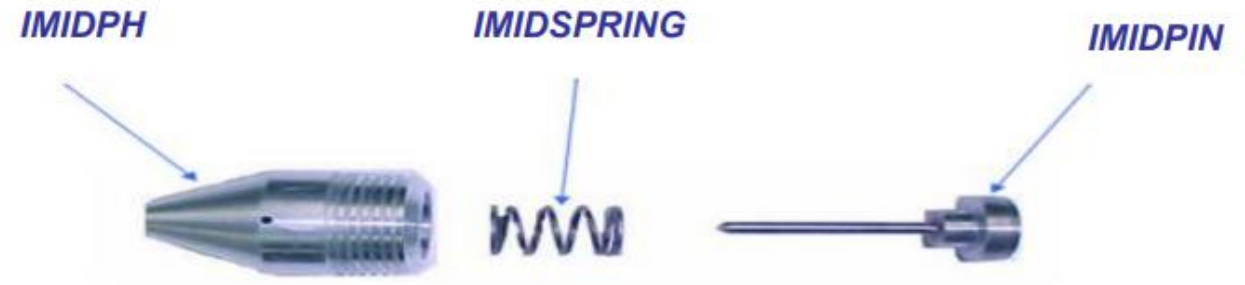
Then Check the box to Obtain IP Address Automatically.

Then Select OK.

You will now be able to connect.

Replacing the Marking Stylus

You may encounter a situation where the mark will start to look less clear than before. Or perhaps that the marking has become sloppy. 90% of the time, this is caused by a broken, chipped or worn marking stylus. Here is how to replace the pin.



Start by unscrewing the pin housing from the M-Series and removing it from the machine. Then while holding the pin housing assembly firmly in your hand, press the pin downward against a hard surface to eject the pin out of the backside from the housing.

Take the pin out of the housing and either sharpen or replace with a new one. CMT part # (IMIDPIN).

To replace the pin, assemble the spring and pin back together according to this picture above and hold the assembly in your hand again. Now with you thumb press the piston side of the pin firmly into the housing to seat the pin the assembly.

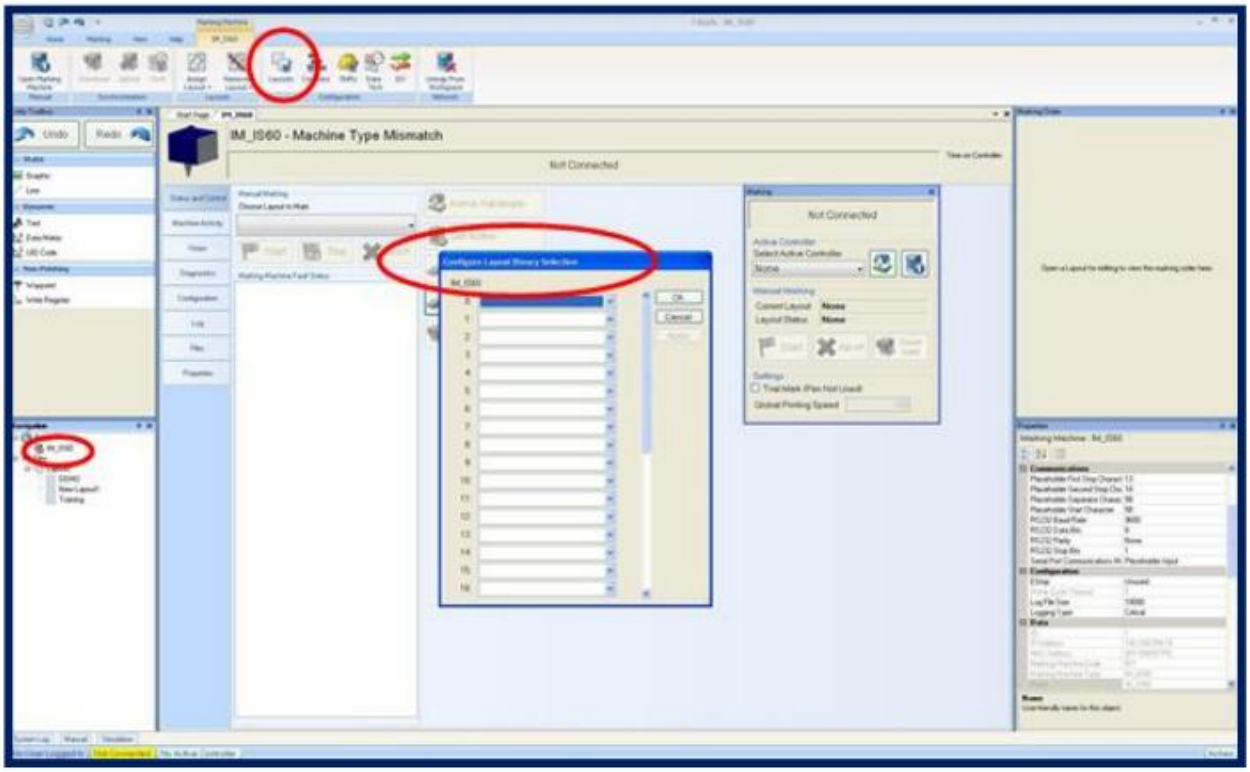
If you a have a hand Andy or extended pin set up contact CMT for possibility of reshaping.

Binary Select I/O

Load the I-Mark Software and open the machine controller page. Note you can open the machine controller page by clicking on the desired machine in the navigation toolbar.

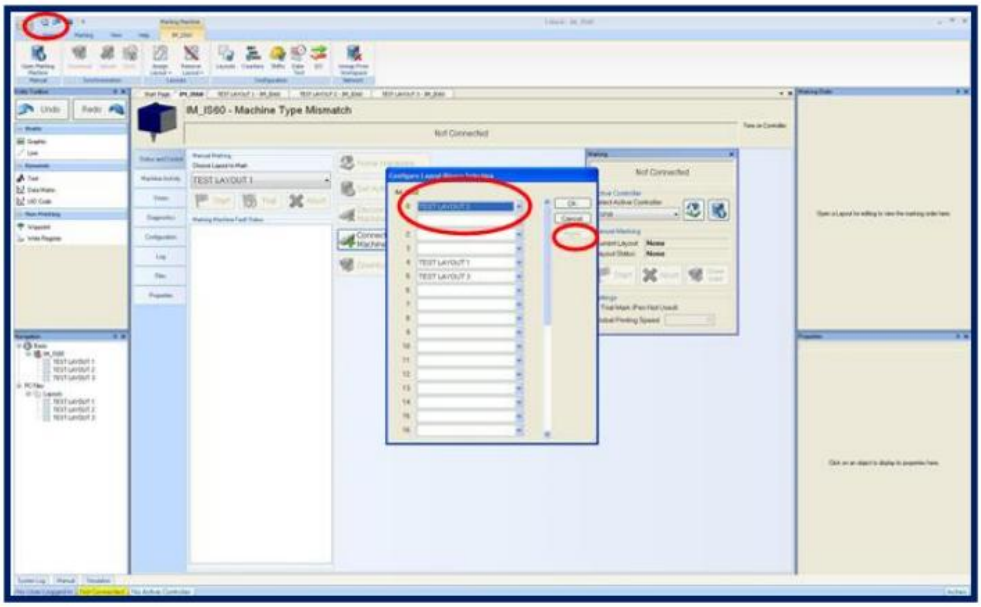
The Machine does not have to be connected to setup the binary configuration but you will need to connect and download before your changes will take effect.

Once you have opened the controller page find the “Layouts” Icon in the ribbon and select it. The Configure Binary Selection dialog should then appear as shown below.



Once the Configuration dialog is open you can select each layout that you would like assigned to the corresponding binary bit. The image below shows an example of this.

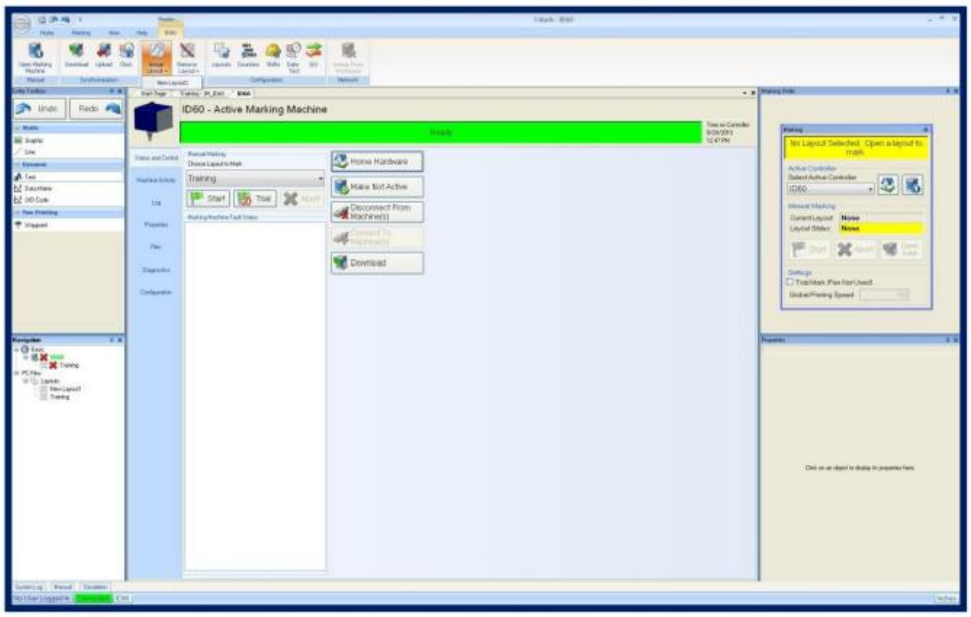
Once you have assigned your layouts click “Apply” and then okay to set them. You will then need to click save to store your settings before you download.



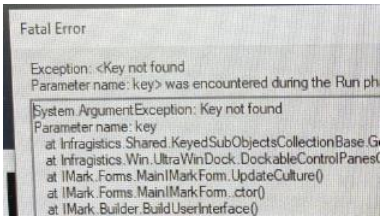
After you have saved your new binary configuration you will need to download it to the controller.

If you are not connected click the connect button then click download. Your changes will be sent to the marking controller and stored in flash memory until you change them.

(Note: these settings will remain in flash even through a power cycle.)



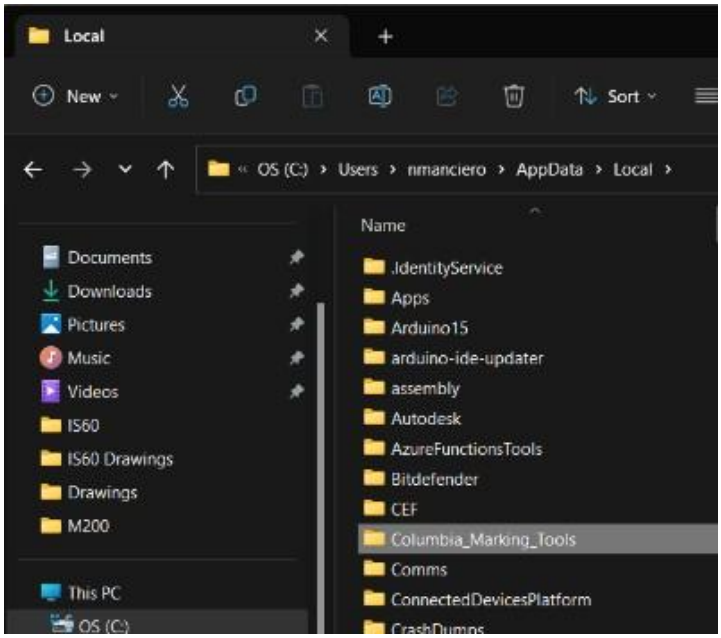
I-Mark Fatal Error Fix



On rare occasions, I-Mark will throw a Fatal Error if the user database gets corrupted within Windows. This can happen for a number of reasons due to the volatility of Windows updates and registry changes, but thankfully, there is an easy fix.

If the Fatal Error appears as I-Mark is attempting to start up, ensure that I-Mark is closed and follow these steps:

1. Open your Windows File Explorer by pressing the Windows Key + E at the same time.
   Note: the Windows Key is a key on your keyboard with the Windows Logo (or some variation) on it. See the example screenshot on the right.
2. Navigate to C:\Users\[username]\AppData\Local\Columbia_Marking_Tools\
   Note: the “AppData” folder is typically hidden by default in Windows. To see hidden files and folders, go to “View” near the top-middle of the File Explorer window. Select Show then checkbox Hidden Items. Older versions of Windows may have this option under a slightly different menu in the File Explorer, but the same concept applies.
   Note: [username] should be whatever the profile name is on your system. For example, in my screenshot, the [username] is nmanciero. If your PC has more than one user profile on it, you may need to navigate to each one to find the Columbia_Marking_Tools folder.
3. Delete the Columbia_Marking_Tools folder. You may now close the File Explorer. This folder contains the corrupted user.config file.
4. Start the I-Mark software.
   It may take an extra minute or so to start, since the I-Mark software will automatically rebuild the user database.



If I-Mark functionality is not recovered after

following the steps in this guide, please reach out to us at service@columbiamt.com and reference your Support Ticket number. If you have not created a support ticket yet, please do so at http://marking-machines.net/Support_Request.html. Thank you!

Fault Code Common Fix

This section outlines the most common fault codes and recommended corrective actions.

Common Fault Codes & Solutions

Max Fonts

- **Cause:** Microcontroller overload
- **Solution:**
    1. Click **Download**
    2. Save your layout
    3. Restart the marking machine

Key Expired

- **Cause:** License key expiration
- **Solution:** Contact **CMT** to obtain an updated license key

---

Marking Machine Application Task Not Running

- **Cause**: Malfunction of firmware
- **Solution:** Restart the controller or power cycle the controller

---

Marking Machine Utility Task Not Running

- **Cause**: Malfunction of firmware
- **Solution:** Restart the controller or power cycle the controller

---

Timed Out While Holding

- **Possible Causes:**
    - Marking head is not plugged in

- Mechanical issue with the marking head

- **Solution:**
  - Verify all connections
  - If the issue persists, the marking head may need to be returned to **CMT** for repair

---

Overcurrent Fault

- **Possible Causes:**
  1. Marking machine has been idle for an extended period
  2. Rapid software commands (e.g., aborting a mark and immediately commanding Home)
- **Solution:**
  - Press the **Home** hardware button on the controller

General Recovery Procedure

When in doubt or if the issue is unclear:

1. **Download** the layout again
2. If unresolved, **restart or power cycle the controller**

If the issue persists and you have access:

- Test the marking machine using a **known working controller**
- Ensure the **same version of I-Mark software** is installed

Important: When using integrated systems, all controllers must run the **same software version**.

If no resolution is achieved, contact **CMT** for service or repair.

Fault Codes

faultApp00	No Fault
faultApp01	Layout Not Found
faultApp02	Invalid Layout Opcode
faultApp03	Invalid Layout bit count (max 5)
faultApp04	Real Time Clock Failure, Time invalid
faultApp05	Invalid Placeholder Index
faultApp06	Placeholder Data is null
faultApp07	Data Matrix data is too large
faultApp08	Font Specified >= 64
faultApp09	Font not found or not loaded. Max of 10 fonts.
faultApp10	Graphic File not found
faultApp11	Graphic File too large
faultApp12	Invalid Graphic Alignment specified
faultApp13	Invalid Line Style, expecting straight
faultApp14	Invalid Line Sytle, expecting circular
faultApp15	Bad Font Character

faultApp16	Invalid Text Alignment
faultApp17	Invalid Text Direction
faultApp18	Marking Aborted
faultApp19	Bad Data Matrix Height
faultApp20	Bad Data Matrix Square Percent
faultApp21	Initialization Error, Missing or Corrupted Files
faultApp22	Timed out while homing.
faultApp23	Unknown parameter in Parameters#.txt
faultApp24	Parameters#.txt not found
faultApp25	Index Locate failure, Failed to detect probe
faultApp26	Index Locate failure, Failed to move off probe
faultApp27	Invalid user integer register specified in I/O statement
faultApp28	Invaild user integer register specified in write integer register command
faultApp29	Invaild user integer register specified in write floating point register command
faultApp30	Invalid axis marking plane selected.
faultApp31	Attempt to jog an axis that has not been homed
faultApp32	Attempt to mark with an expired tool.

faultApp33	Key expired.
faultApp34	Invalid Key ID
faultApp35	Invalid Machine ID
faultApp36	Write Register Entity is no longer supported.
faultApplicationFault	Application Fault (%%1): %%2
faultApplicationFaultUnknown	Unknown Application Fault: %%1
faultAxis00	Position Error
faultAxis01	Over Current
faultAxis02	CW hardware limit
faultAxis03	CCW hardware limit
faultAxis04	CW software limit
faultAxis05	CCW software limit
faultAxis06	Amplifier
faultAxis07	Position Feedback
faultAxis08	Velocity Feedback
faultAxis09	Hall sensor
faultAxis10	Max Velocity Command
faultAxis11	Emergency Stop

faultAxis12	Velocity error
faultAxis13	Task
faultAxis14	Probe Input
faultAxis15	Auxiliary input
faultAxis16	Safe Zone
faultAxis17	Motor Temperature
faultAxis18	Amplifier Temperature
faultAxis19	External Encoder
faultAxis20	Communications Lost
faultAxis21	reserved21
faultAxis22	reserved22
faultAxis23	Feedback Scaling
faultAxis24	reserved24
faultAxis25	reserved25
faultAxis26	reserved26
faultAxis27	reserved27
faultAxis28	reserved28
faultAxis29	reserved29

faultAxis30	reserved30
faultAxis31	reserved31
faultAxisFault	Axis %%1 Fault: %%2
faultAxisFaultUnknown	Axis %%1 Unknown Axis Fault: %%2
faultFileConfigMissing	Config.txt File Missing
faultFileCounterMissing	Counter.txt File Missing
faultFileLanguageMissing	CurrentLanguage.txt File Missing
faultFileShiftMissing	Shift.txt File Missing
faultIMarkMainTask	Marking Machine Application Task not running.
faultIMarkUtilTask	Marking Machine Utility Task not running.
faultTask00	No Fault
faultTask01	Argument Out of Bounds
faultTask02	Invalid Register Type
faultTask03	Port Already Open
faultTask04	Invalid Sync Task
faultTask05	Invalid Program Password
faultTask06	Invalid Embedded Command Issued
faultTask07	Corrup Flash Memory Found

faultTask08	Un-Implemented Command
faultTask09	Modbus Register Regx
faultTask10	Feature Not Supported By Hardware
faultTask11	Axis is Currently In Fault
faultTask12	Invalid Embedded Function Rev
faultTask13	Task Not Enabled
faultTask14	Code Section is too small
faultTask15	Data Section is too small
faultTask16	Compiler Version Mismatch
faultTask17	Invalid Axis Given
faultTask18	Invalid Axis Configuration
faultTask19	CNC5 option required
faultTask20	No Joystick Pairs Enabled
faultTask21	File Name Is Too Large
faultTask22	Insufficient File System Memory
faultTask23	File Currently Exists
faultTask24	File Does Not Exist
faultTask25	Corrupt File Found

faultTask26	File Optimize Interrupt
faultTask27	File Access Past End Of File
faultTask28	File Not Open
faultTask29	File Opened as Read-Only
faultTask30	File Opened as Write-Only
faultTask31	No File Handles Available
faultTask32	File Already Open
faultTask33	Read File Buffer Too Small
faultTask34	File Write With CRC On
faultTask35	Heap Allocation Failure
faultTask36	Slab Heap Exhausted
faultTask37	Axis Not In Tasks Plane
faultTask38	Error On Firmware Upload
faultTask39	Motion Active
faultTask40	Profile Entry Error
faultTask41	Invalid Home Configuration
faultTask42	Amplifier Not Enabled
faultTask43	Radius Specified With Full Circle

faultTask44	Radius Too Short for Arc
faultTask45	Plane Profiling
faultTask46	PV Length Error
faultTask47	Splining Not Enabled
faultTask48	Cam Abs Index In Current Plane
faultTask49	Cam Not Enabled
faultTask50	Cam Not Monotonic
faultTask51	Cam Previously Enabled
faultTask52	Cam Search Count Exceeded
faultTask53	Cam Time Over-run
faultTask54	Failed Cam Comm to Slave
faultTask55	Invalid Cam Configurations
faultTask56	Invalid Cam Context Cmd
faultTask57	Invalid Cam List Size
faultTask58	Master Not A Camming Axis
faultTask59	No Cam Context
faultTask60	Not Find Cam Segment
faultTask61	Invalid First Last Cam Pos

faultTask62	No Gantry Slave Motion
faultTask63	Corrupt Cam File Found
faultTask64	Cam File Too Large
faultTask65	Cam Table Not Loaded
faultTask66	Cam Offset Out Of Table
faultTask67	Stack Overflow
faultTask68	Array Out Of Bounds
faultTask69	Division by Zero
faultTask70	String Assignment Overflow
faultTask71	Sync Time Overrun
faultTask72	Task Monitor Error
faultTask73	OnTaskFault error
faultTask74	Semaphore Starvation
faultTask75	Circular Radius Error
faultTask76	Feature Not Enabled
faultTask77	Master Motion Suppressed
faultTask78	Invalid Time Interval Specified for Move Command
faultTask79	Invalid File Name

faultTask80	Invalid Motor Type
faultTask81	MX is Reprogramming
faultTask82	COM Port Not Open
faultTask83	Joystick Interlock Open
faultTask84	Flash Config Commit Failed

Conclusion, Support Resource, Contact Information

The I-Mark software and marking system are designed to provide a precise, flexible, and reliable solution for permanent product identification and traceability. Through structured layouts, dynamic data handling, and advanced entities such as counters, placeholders, Data Matrix, and UID codes, operators are able to create marking programs that meet both operational and compliance-driven requirements.

By following the workflows outlined in this manual—from workspace organization and layout creation to teaching, downloading, and execution—users can ensure consistent marking results while minimizing setup time and operator error. Proper use of Trial Runs, entity-specific settings, and hardware verification further supports safe operation and high-quality marking results across a wide range of materials and applications.

This manual provides in-depth instructions covering the standard operation and configuration of I-Mark systems. However, additional support resources are available should further assistance be required.

Additional Support Resources

- **Knowledgebase**
  Access troubleshooting articles, FAQs, and guided solutions:
  https://i-mark.tawk.help/
- **Technical Support Request**
  Submit a formal support request at:
  https://marking-machines.net/Support_Request.html

When submitting a request, please include:

  - Software type
  - Marking machine serial number
  - Description of the issue and operating conditions

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