IMCMT

Columbia Marking Tools
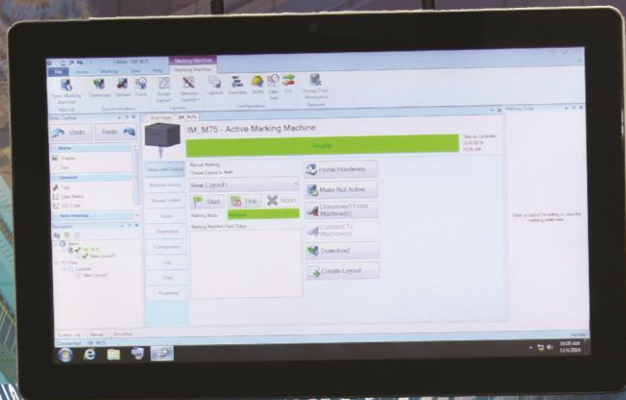
M-Series

IM-M75
DOT PEEN

MADE IN THE USA
COLUMBIA MARKING TOOLS
WWW.MARKING-MACHINES.NET

PH: 1-800-469-MARK FAX: 586-949-8401
EMAIL: m-series@marking-machines.net
www.marking-machines.net

Table of Contents

Rev IM-M615

What's Included

Attn: I-Mark M-Series Customer

Thank you for your purchase of the I Mark M series dot-peen marking system with PC.

- Marking Head Assembly
- Bench-top stand
- Controller Model 200
- Integrated PC, includes I-Mark software preloaded on Windows 7 (32 bit and 64 bit) platform
- Cable to connect Marking Head to Controller
- Monitor & Keyboard with integrated mouse
- Requires 1 shop air line 1/4" NPT and 110VAC power supply

- Marking Head Assembly
- Marks 3-4 Characters per second
- High quality linear shaft guides
- All metal pin assembly
- Uses carbide stylus

- Bench-top Stand
- Quality Extruded Aluminum Base
- T-Slot table 12" x 13.5"
- Manual up & down movement column assembly with high quality lead screw
- Marks parts up to 11" tall
- System pressure regulator with air gauge included

- Controller Model 200
- NEMA industrial enclosure 14" W x 8" H x 6" D
- Sixteen (16) 24vdc optically isolated digital I/O fully programmable with software for controlling external hardware devices to help save costs in automated applications. (8 inputs and 8 outputs)
- Binary select feature for selecting & executing up to 32 multiple programs via the I/O

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- Ethernet 10/100 BaseT communications for programming and integration into system network (can be used with static IP setup or in DHCP mode on a network)
- I-Mark high resolution networkable motor drives for stepper or servo motor control with 10a peak motor output per axis. (Up to 4-axis per controller)
- Digital current and servo loops with line driver encoder for controlling servo motors
- Closed or open loop stepper motor control with micro stepping capability.
- Industrial Harting interface connectors for marking head & I/O
- Serial Data port for input

- I-MARK Software including:
- Intuitive graphical user interface for mark layout / program creation.
- Drag and Drop functionality for easy program creation and entity sizing.
- Generate fixed or dynamic text entities. Including dates, times, counters, serial numbers, text placeholders, shift codes or Ascii characters.
- Dynamically adjustable character height, width, and separation features
- Multiple font support including OCR
- Advanced 2d data matrix code printing with built in depth/position control tools
- Programmable user way points and digital I/O within the marking sequence for creation of fully automated workstations.
- Import DWG/DXF drawing files for background imaging or graphical printing.
- Advanced axis jogging with position feedback for part setup and mark position teaching. Also includes printing simulator for testing mark position before printing
- Advanced fault and production data logging locally
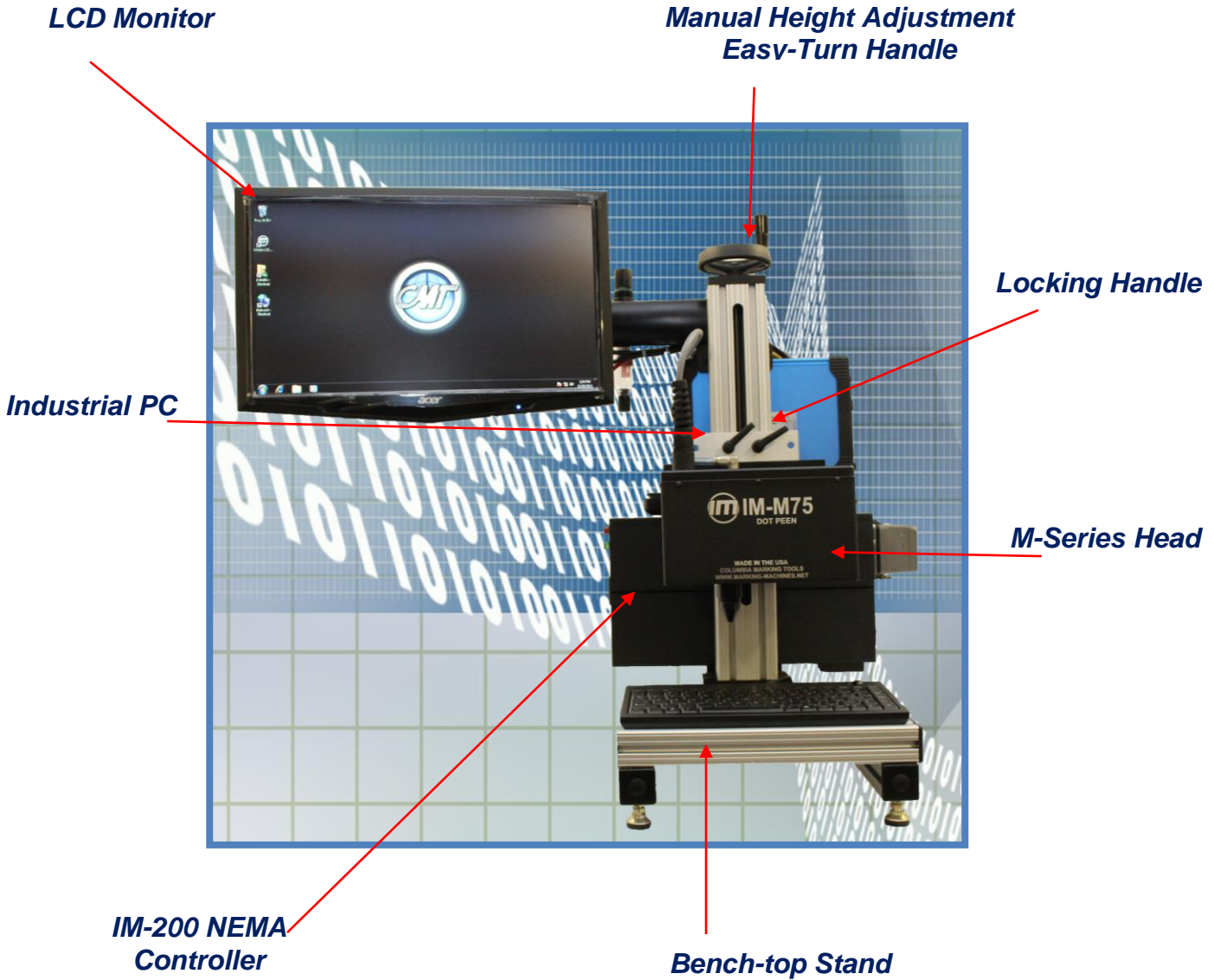- Machine controller page with advanced diagnostics

www.marking-machines.net/support.html offers the latest software and a full library of resource
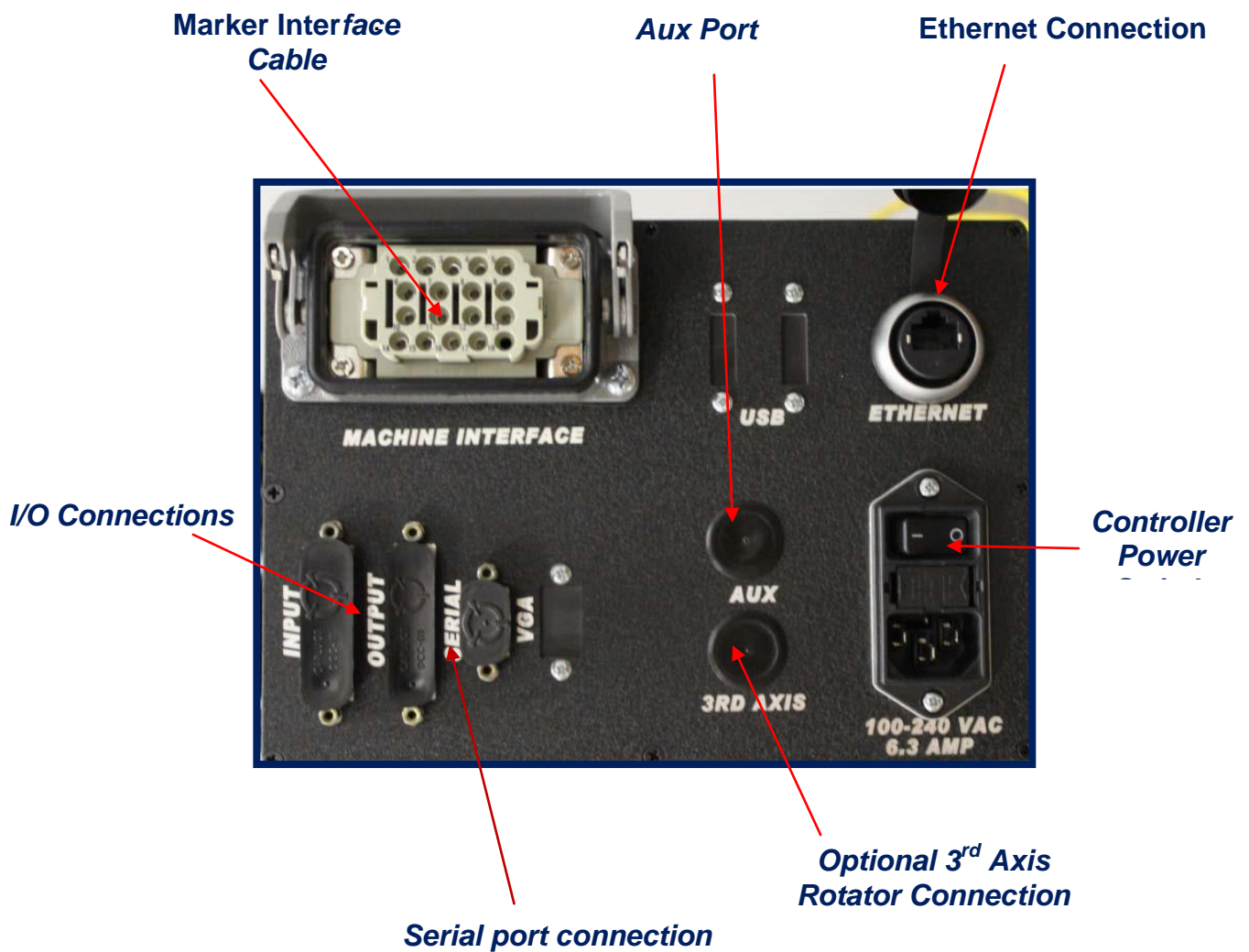
M-Series

CMT — Columbia Marking Tools

M-Series with PC & Stand

LCD Monitor

Manual Height Adjustment Easy-Turn Handle

Locking Handle

Industrial PC

M-Series Head

IM-M75
DOT PEEN

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COLUMBIA MARKING TOOLS
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M-Series Head

IM-200 NEMA Controller

Bench-top Stand

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Machine Controller Connections

Marker Interface Cable

Aux Port

Ethernet Connection

I/O Connections

Controller Power Switch

Optional 3rd Axis Rotator Connection

Serial port connection

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Software Installation

If you did not purchase a PC with your M Series you will need to load the software provided with your purchase of your M-Series machine.

This section will help you get the I-Mark marking software installed on your PC. Minimum PC requirements are 64mb of RAM and a Pentium Processor or equivalent.

This Section is written for 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 error.

Once you have your I- Mark unpacked it's time to get started. *All M Series and any custom systems that are supplied with a PC have the I-Mark software preloaded. For these systems proceed to basic programming and tools.

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

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

Register your I-Mark at:

**http://www.marking-machines.net/I-Mark-Registration.html**

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.

Plug your USB into a port that is currently not being used.

Your computers AutoPlay will automatically bring up your contents.

Select Open folder to view files.
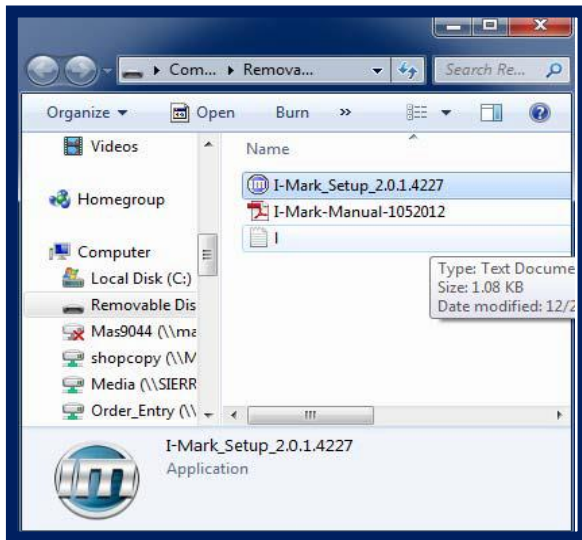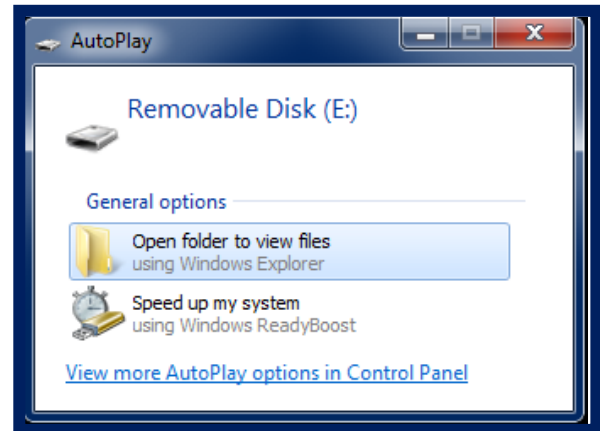
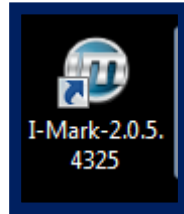Select your I-Mark setup, and start your installation process.

Follow your onscreen prompts until your installation is complete.
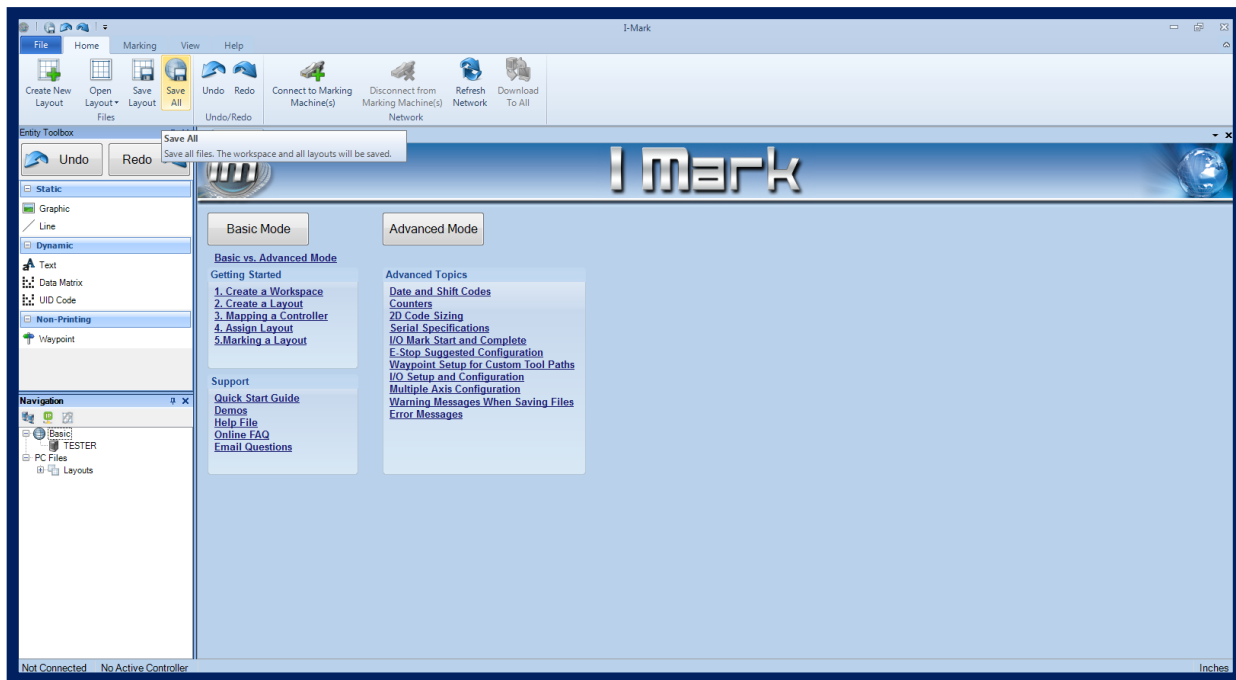
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Once you installation is complete you will see an I-Mark Icon was placed on your desktop.
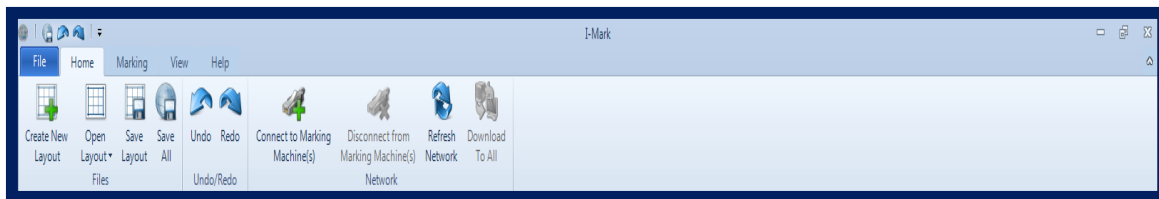

Select the I-Mark icon to begin.

Once the software is up and running you will be greeted with this start page.
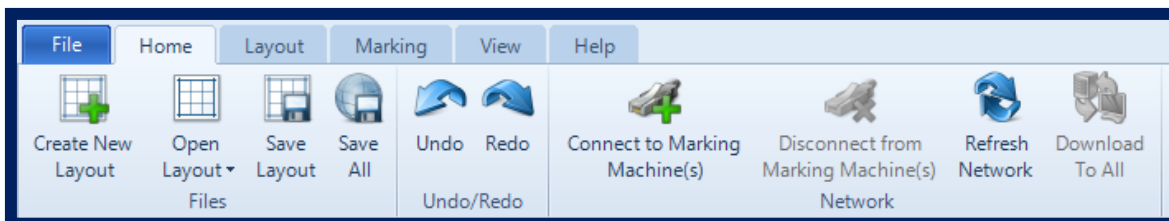
Marking Ribbon

Across top of the I-Mark program you will see the marking ribbon similar to other window's based programs.

Every tab you select across the top (File, Home, Layout, Entity, Marking, View, and settings) will change the icons displayed.
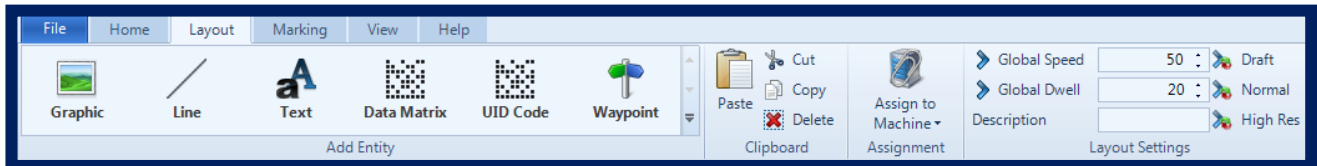
Home Tab

The home tab is where you will:

- Create new layouts.
- Open previously saved layouts.
- Save your current layouts.
- Undo/redo changes your current layout screen.
- Connect and Disconnect to your marking machine.
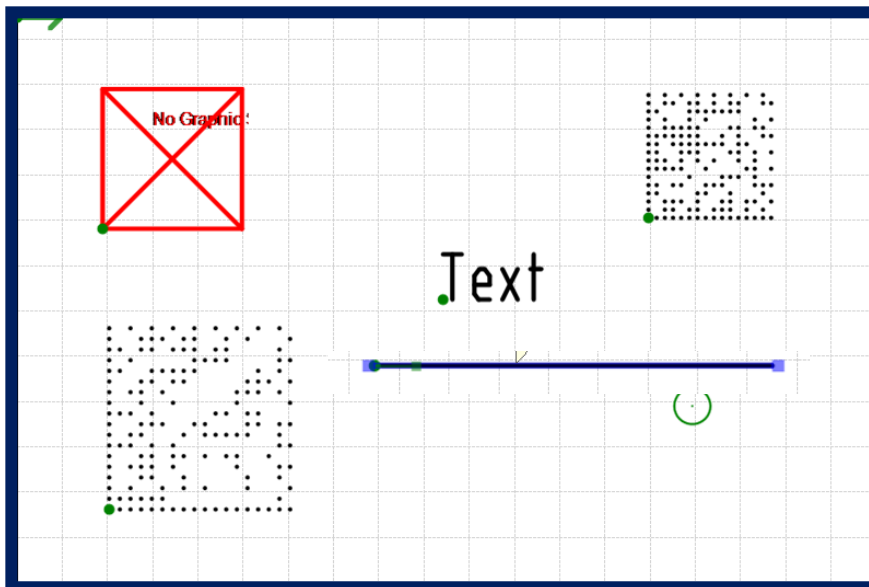- Refresh networks.

Layout Tab

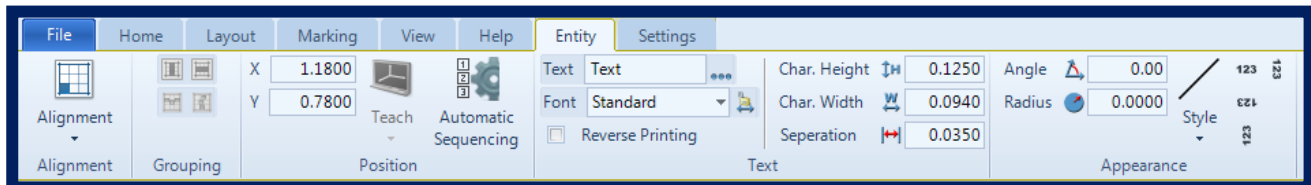The lay out tab will open once your select create layout off your home tab.

In the layout tab is where you will create what type of layout you wish to run along with the layout settings.

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

Once you select one of your options they will appear on the screen.

Entity Tab

Then entity box will open once you have created a text. Once the text appears on your layout you click on the text and you will see your ribbon automatically change to your entity tool bar. The entity ribbon is where you will be working while you create, modify, and teach your layout.

It is in your entity tools where you will:

- Select your starting dot alignment.
- Group and align your layouts (for when you have multiple lines)
- Manually chose your X and Y coordinates.
- 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.

Marking Tab
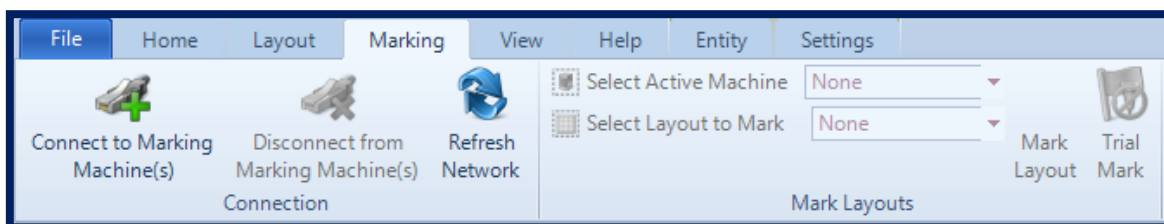
The marking tab will allow you to connect and disconnect from the controller.
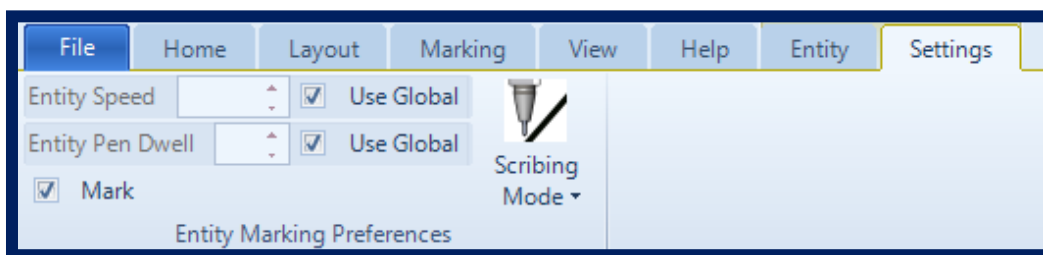
View Tab
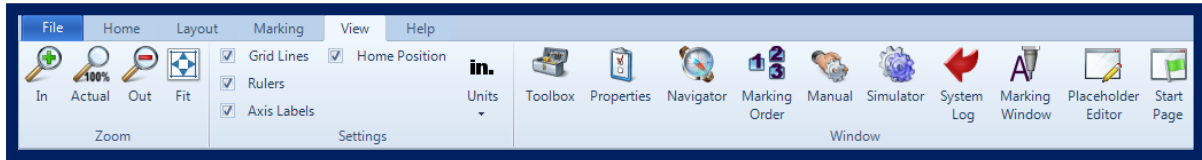
In the view tab you can customize your layout
- Make your layout screen larger or smaller.
- Customize your layout window by adding grid lines, rulers, axis labels and home positions.
- Adding navigation window, marking window, properties windows and marking window to your layout screen.
-
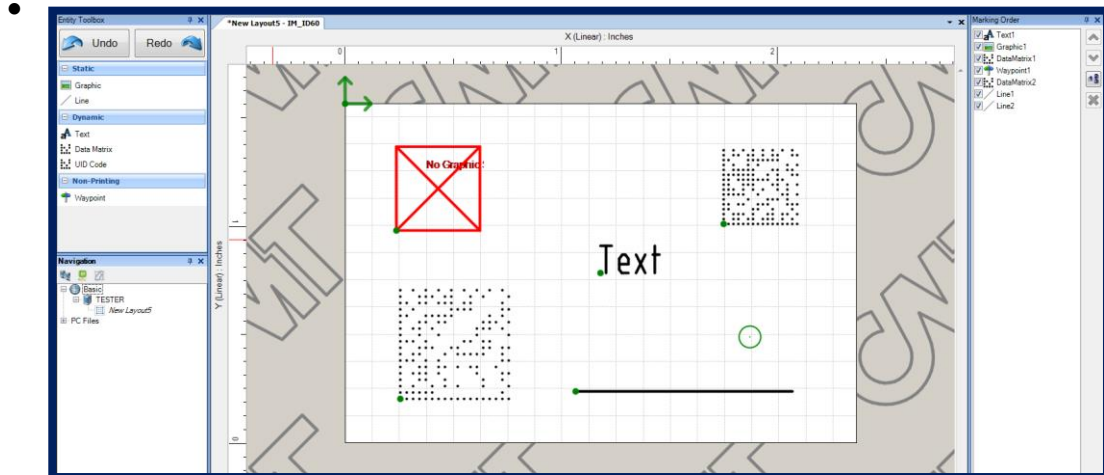
Settings Tab

In the settings tab where you can controller the marking speed of your pin.

Connect to Marking Machine

Now that you are familiar with your I-Mark Ribbon controls we will get started by connecting your marking machine with your IM200 controller.

Start by locating your Marking Tab on the ribbon on the top of your screen.

The first button available will be the button that reads Connect to your   Marking Machine. Click on the button to connect.
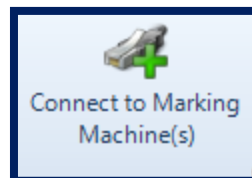
Your machine will bring up a screen that starts by verifying your network status while is pairs your marking head with the controller.

If paired correctly you will notice on the left hand of your screen in the navigation pane a green check mark next to your machine ID. (IE IM-M75, IM-M125, or IM-M200.)

Next you will click on the machine ID to open your controller window.
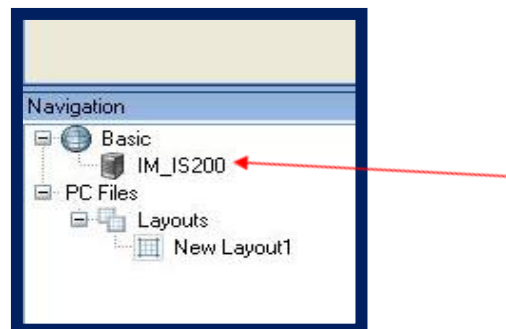
Once you have clicked on the machine the I-Mark will open the control page for your machine.

Your active marking machine window will now open on your start page.
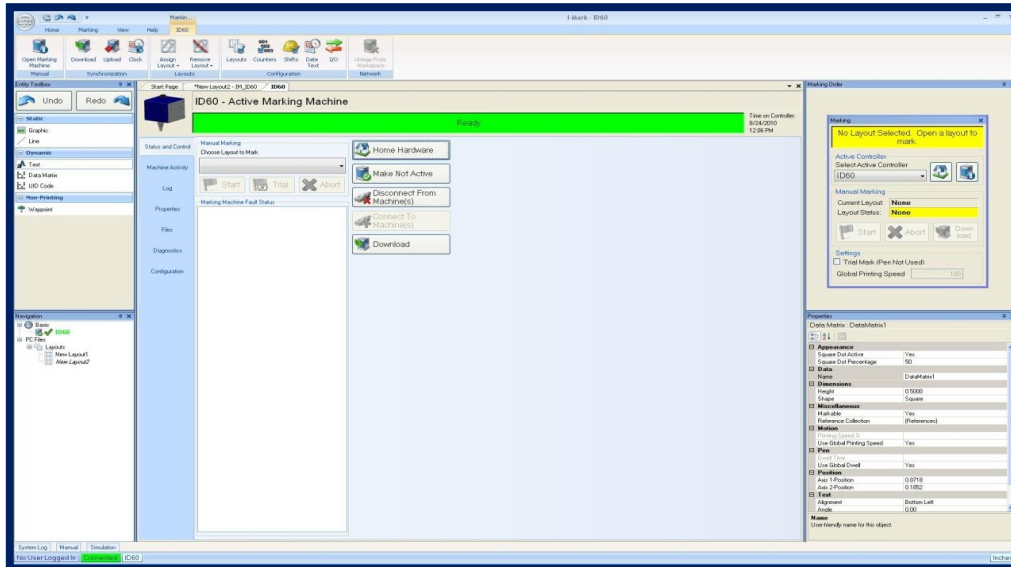
This control page is where we will download the programs to the machine, specify the machines settings, and run your program.

Now that your machine is connected you will be able to start creating layouts.

If you purchased the complete package you your unit will be set up to automatically connect and you can start creating layouts.

(If your machine does not pair you will need to modify your IP address. You can find information on modifying your IP Address in the Appendix)

Creating a New Layout

Once we have detected out machine you can now create a marking layout.

A marking layout is the data that the machine will print.

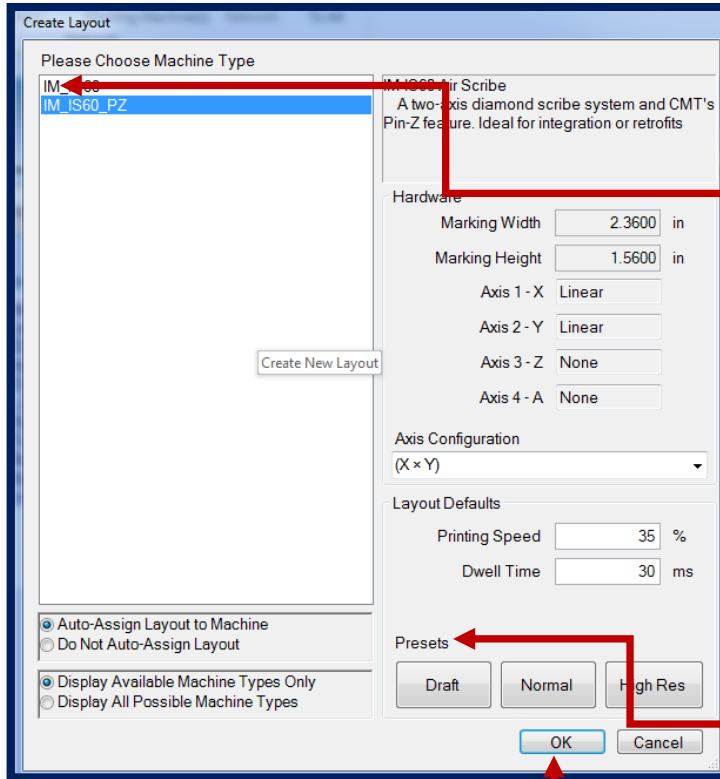To do this we will need to select "Create layout form the home ribbon"

After selecting your create new layout tab a new window will open prompting you to choose your machine type.

You should only have one option to choose from.

Select your presets. (Draft, normal, High Res. This will determine the marking speed)

Then select OK

Your layout screen will now open in a new window.

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Create Layout

Please Choose Machine Type

IM_IS60
IM_IS60_PZ

IM_IS60 Air Scribe
    A two-axis diamond scribe system and CMT's Pin-Z feature. Ideal for integration or retrofits

Choose your machine

Hardware

Marking Width	2.3600	in
Marking Height	1.5600	in
Axis 1 - X	Linear	
Axis 2 - Y	Linear	
Axis 3 - Z	None	
Axis 4 - A	None	

Axis Configuration

(X × Y)

Layout Defaults

Printing Speed	35	%
Dwell Time	30	ms

Create New Layout

● Auto-Assign Layout to Machine
○ Do Not Auto-Assign Layout

● Display Available Machine Types Only
○ Display All Possible Machine Types

Presets

Draft   Normal   High Res

Select your marking speed

OK   Cancel

Choose Ok

A Marking Layout will now appear on your window.

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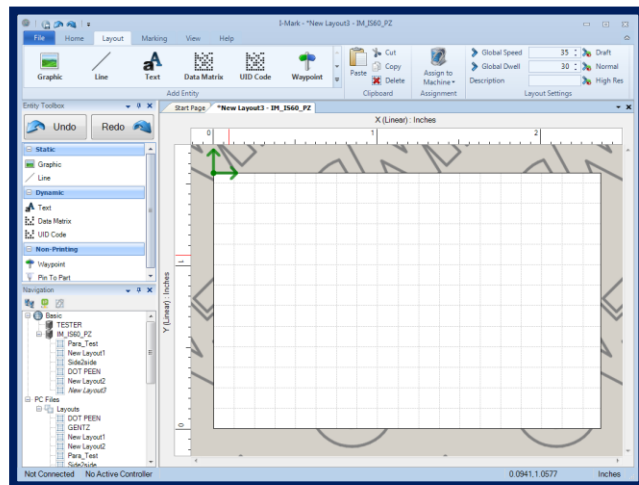
You will notice that the I-Mark program already moved to the Layout ribbon for you.

Your new layout will need to contain the data that you will be printing. We refer to each piece of data as an entity.
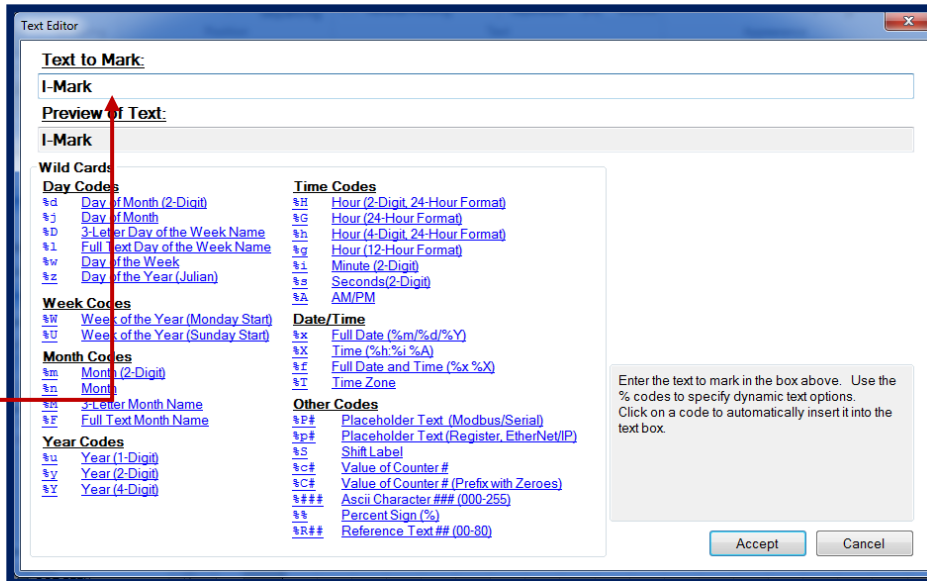
Once your new layout window is open you can select what type of entity your want to put into your layout. Graphic, Line, Text, Data Matrix, or a UID Code.

All entities can be added to the layout using the ribbon or the toolbox.
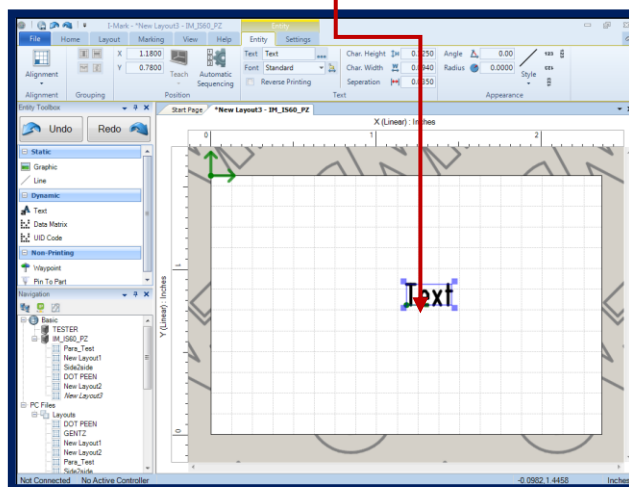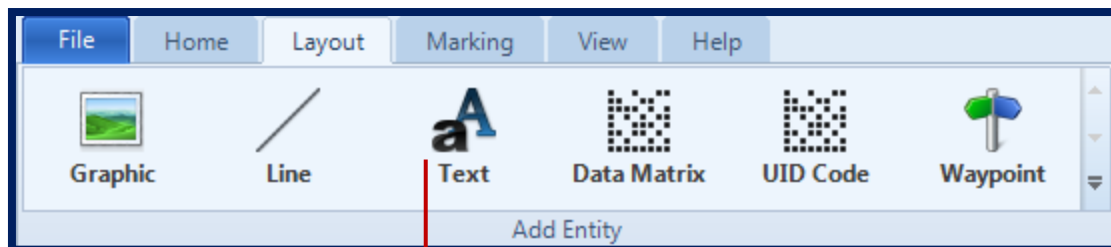
Once you select the text icon in the ribbon you will notice it will appear on your layout.

Double click on the Word TEXT to bring up your text editor.

Enter your desired text here. Then select accept.

Below the text to mark box this is a list of wild cards pre-programed into the I-Mark software for your convenience. Use the % and alpha character for your wild card code.

Once you accept the text editor box will closer and your text that you typed will appear in your workspace.

Text Properties

Once your text is displayed you can now modify your text.

When you highlight an entity in the marking layout, the ribbon will display the specific properties of that object.

These properties include the Size, Angle, Orientation and the font type for that entity.

Alignment   Font   Size   Orientation
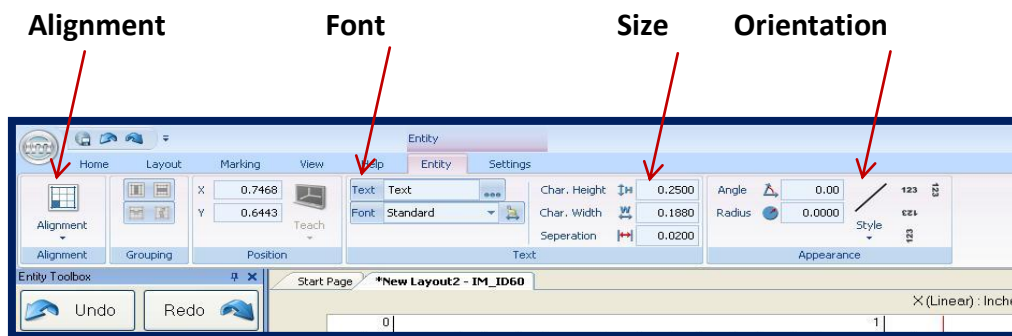
You can also edit the Text or other entity properties for the properties dialog box.

To turn on the properties dialog select view from the ribbon and then click on the properties. The default location for the properties dialog is the bottom right hand corner of the screen.

As with the ribbon properties menu the properties dialog will display the specific properties when an object is selected in the layout.

View Tab   Properties

Properties Dialog once displayed.

Once you know how to navigate and change the entities properties you can input the actual data to be marked.

As with most functions in the I-Mark program there are multiple ways to perform the same task. You can select icons, use the side menus or utilize right click and shortcut menus.

For editing text objects simply double click the text entity that you would like to edit. To display the text editor dialog.

The text editor will allow you to input fixed or dynamic text into a string.

Fixed text = Fixed text is any text string that does not change such as a name or part number.

Dynamic Text= Text that is constantly updating such as a counter, date or time.

Using the text editor you can create a string that contains fixed text, dynamic text or a combination of both.

Let's start with a simple date code containing fixed and dynamic text.

You will notice that once you enter text into the input field it will also appear in the preview window.

For dynamic text objects you can type in the code from the list below. Or click on the hyperlink to add it to your string.

As you build the string the preview window will show the results that the machine will print.

Input field   **Preview Field**   **Hyperlinks**
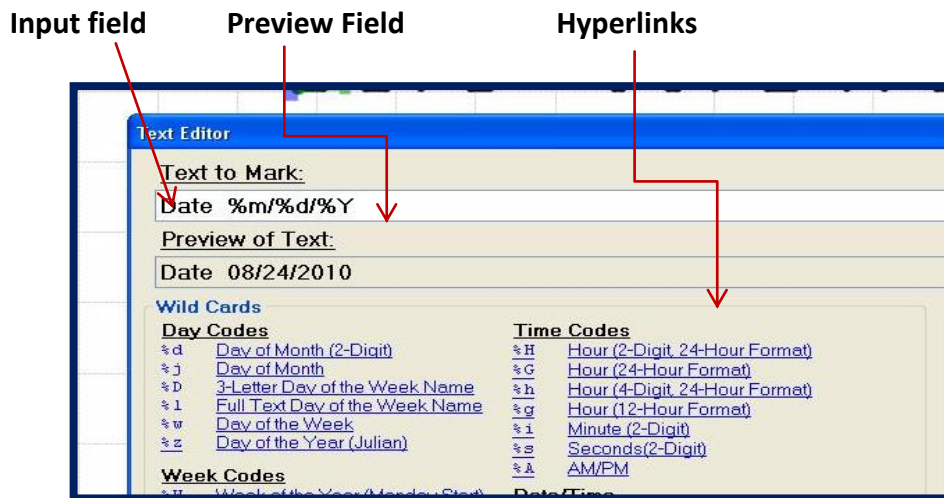
After you click enter you will see the updated text appear in the marking layout.
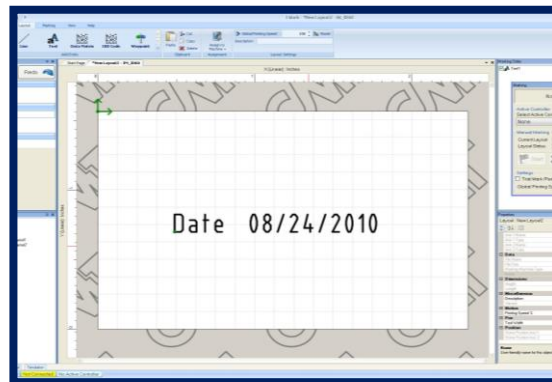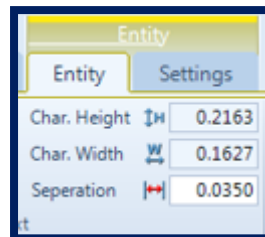

You can now edit the size, shape, and orientation to suit the application.

Character Size

Adjusting your character size can be done multiple ways.

You can manually change your text size by using your arrow to drag to your   desired location.

You can manually enter the size you want in inches. You can adjust the height width and separation.
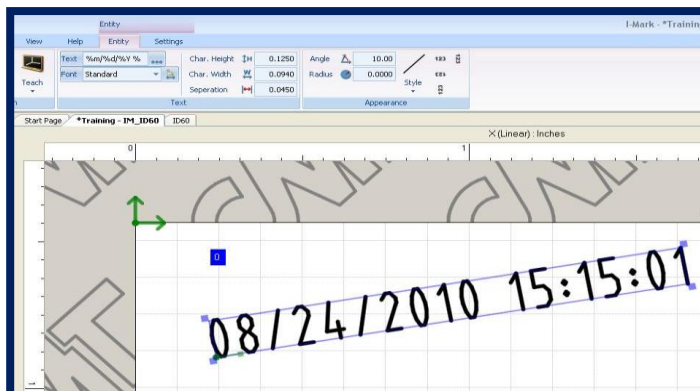

Angular Text

To create an angular text select the text entity in the layout.

The ribbon menu will update to show the properties for that entity,

Click angle and specify the angle you want to rotate the entity to.

Once you press enter you will see the entity will update in the marking layout.
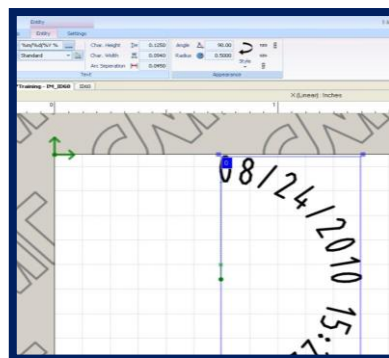
Radius Text

I-Mark software will also allow you to quickly create a radial text for marking in a circular pattern.

The ribbon menu will update to show the properties for that entity.

Click radius property and specify the radius you want to rotate the entity to.

Once you press enter you will see the entity will update in the marking layout.


Graphics

I-Mark software also allows you to add graphics or logos to your marking layout,

You can input a graphic by selecting graphic from the ribbon or dragging it for the entity tool box.

I-Mark does come preloaded with some graphic files. However a DXF converter is built into the software if you would like to create your own.

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Once you click on the graphic icon a blank template will be inserted into the   layout. You must then double click the template to select the graphic you would like to insert. From the graphic dialog use the preview window to select the graphic you would like to add then accept to add it to your layout.
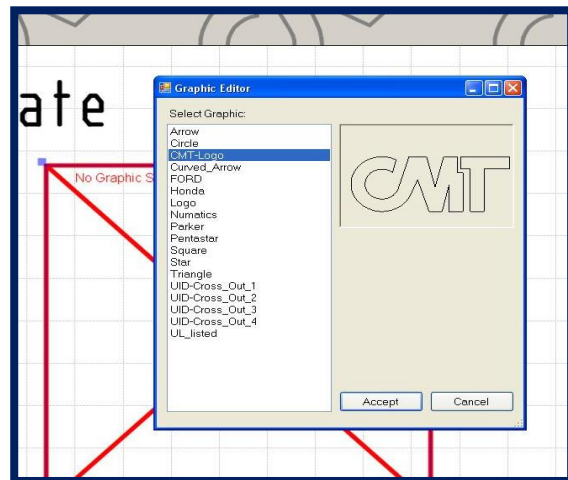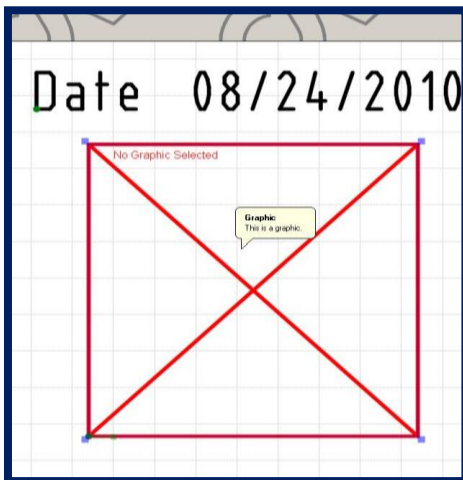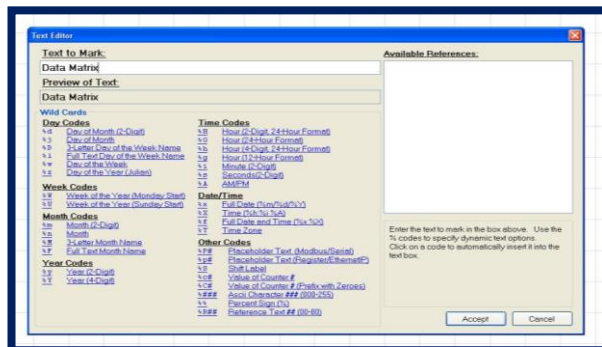
Data Matrix Code

The Next major entity used in part traceability is the 2d Data Matrix.

There are two different types of Data matrix codes entities in the I-Mark software. The first is the data matrix and the second is UID code.

To insert the data matrix code select it from the ribbon or drag it from the toolbox onto the marking layout. After you add the data matrix you will see it displayed on your layout.

If you hold the mouse over the code without clicking on it you can see the data that has been encrypted.

Next we will edit the data inside by double clicking the code to display the data matrix code editor. It will look very similar to your text editor box.

You can input fixed or dynamic data and it will be encrypted into the code.

After you have added your encrypted data click accept then use your mouse overtop of the data matric to see the new encrypted data.
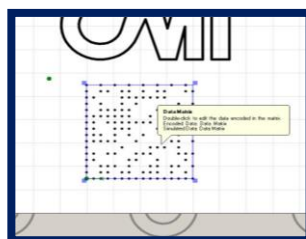
One State of the Art feature offered on CMT machines is the ability to do SquareDot. This allows you to print a DM code using high resolution squares instead of simple dots

Squares allow for the camera to identify the code on hard to read surfaces such as castings or finishes with heavy machining marks.

To use the SquareDot function. Click on the DM code in your marking layout.

Then go to the properties dialog and you will find the SquareDot feature. To turn it on simply click "Yes"

You will also see the Dot Percentage. This allows you to increase or decrease the size of the dots based on the application
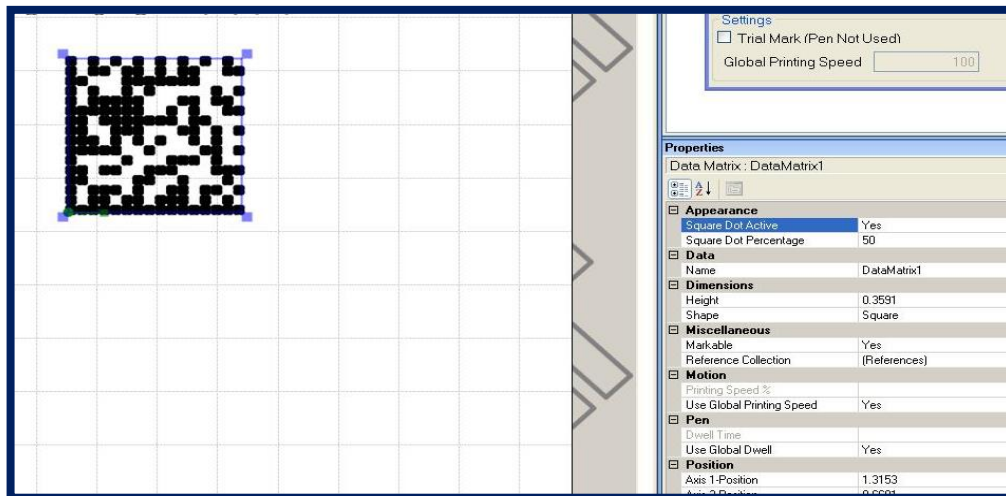
Adjusting Speed

One of the key features in the I-Mark Software is its ability to program different speeds for different entities.

An example is that you are printing a layout similar to our sample on the previous page that has 2d datamatrix. For cycle time reasons we want to print the text quickly but run a slower speed on the Datamatrix to ensure higher quality.

We can set the machine to run at a global speed or we can specify a speed for each entity

The global speed is the speed that the machine will run unless a different speed is specified for any given entity

To set the global speed you can click on the layout background and then adjust the speed

To adjust the speed on any specific entity select that entity in the layout.

Select the settings tab from the Ribbon menu.

You can then uncheck the Global option and specify an exact speed.

 I-Mark Software also contains a property called Entity Dwell. This property allows the machine to dwell after making each move while drawing the character. This property is useful if you are running at a high rate of speed and begin to loose portions of your character.

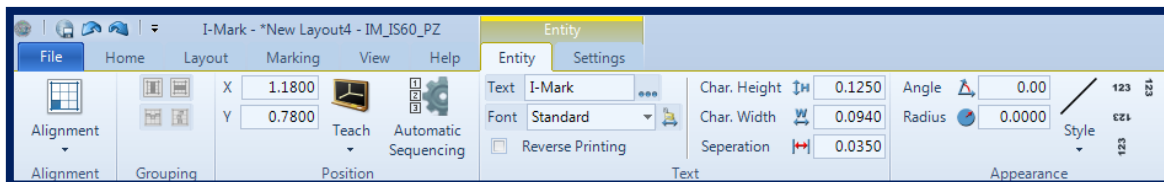You can adjust your dwell speed in your ribbon under the settings tab.
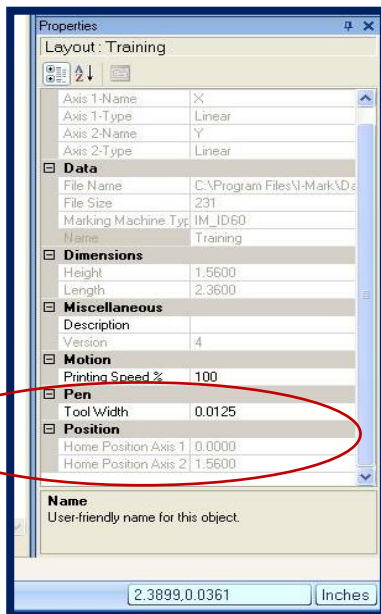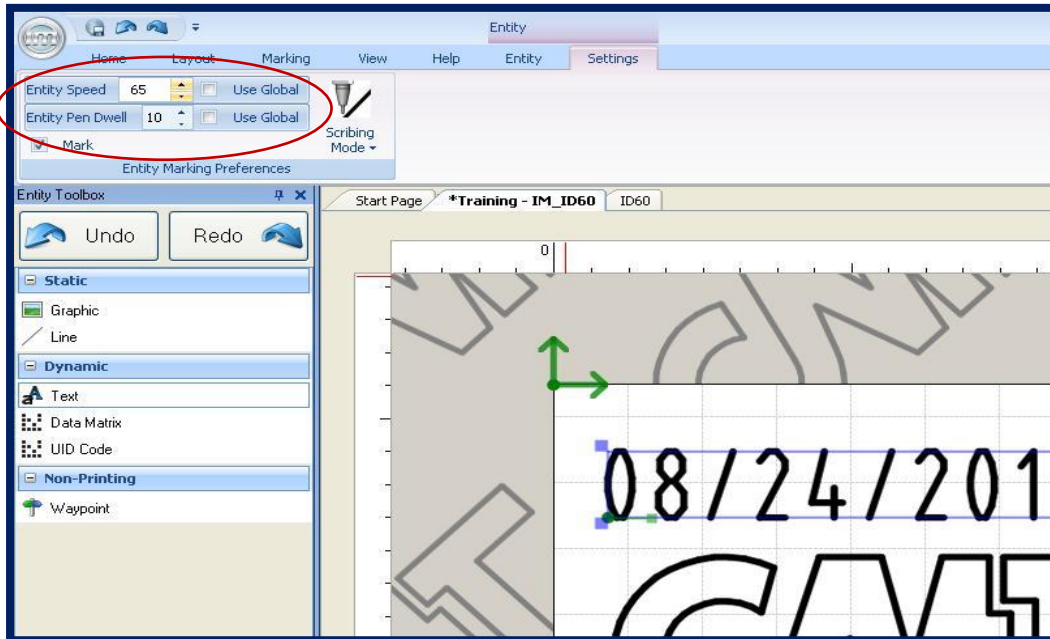
You can also adjust your dwell speed in the   proper-
ties box.

Teach Function

Manually teach your marking head to the location that you would like your text starting point on your part to be.

Double click on your text in your marking layout. To bring up the entity tab in the ribbon.

Click on the Teach icon and a drop down menu will open where you will select the option "Open Manual Controls".

This will bring up your manual controls where you will teach to your part.
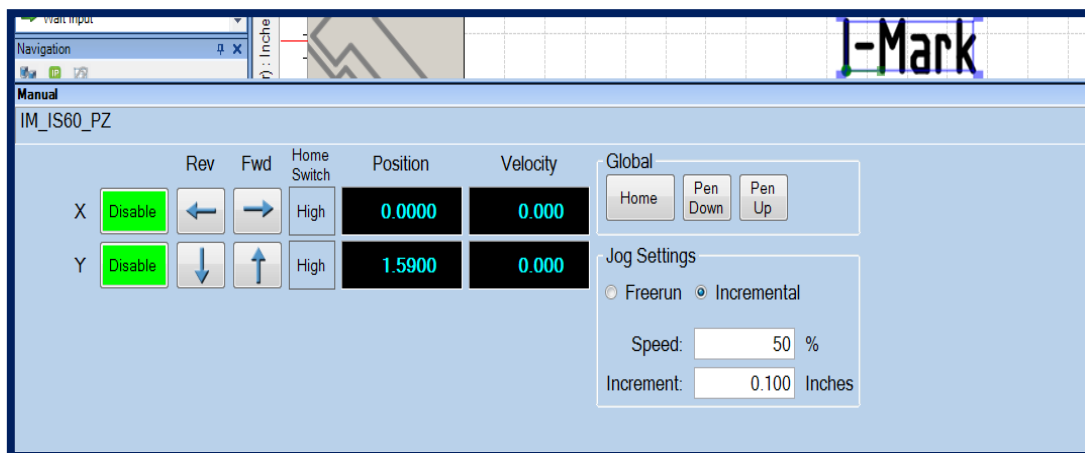
You can now physically jog the X and Y axis to line up above your part.

Jog the X-Axis until the marking pin is over top the marking area that you are   desiring to mark. Then jog the Y-axis to bring the Y-Axis over.

Remember the first mark will start in the bottom left corner by default.   Adjust accordingly.
Now that your X and Y Axis are in the position of the desired marking location.

Go back to your entity tab and find your teach icon. Click on the teach icon, this time you will want to select the All Positions in the drop down.
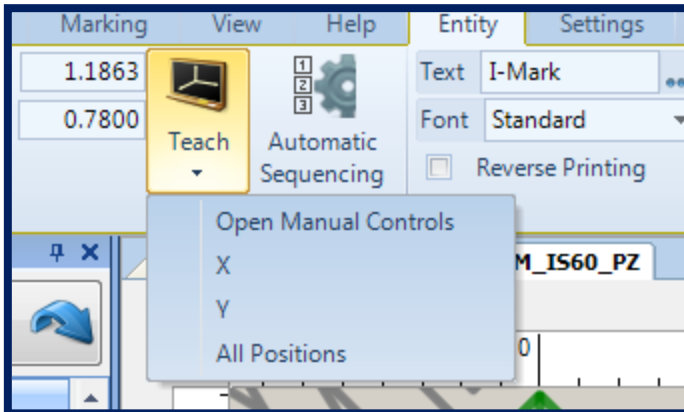
After selecting the "All Positions" you will see that the text on the grid has moved to the relative position on the marking layout.

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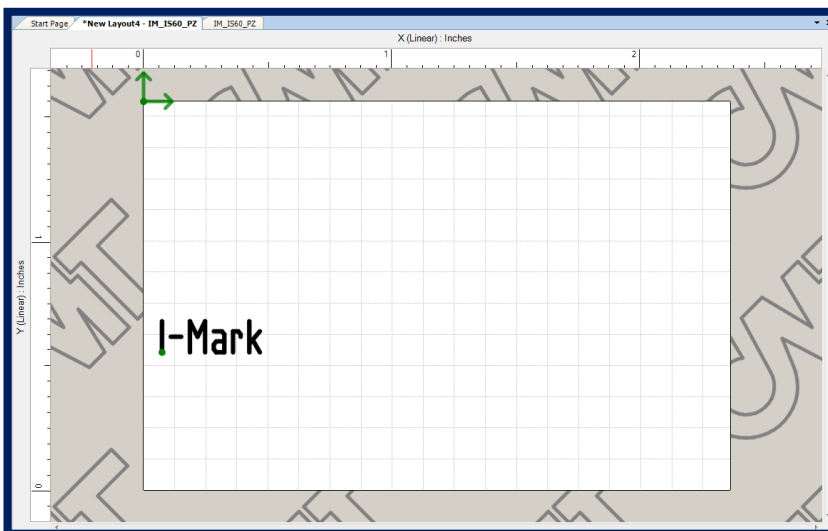
Download and Save

Now that you have taught your marking location, you can download your layout and start marking.
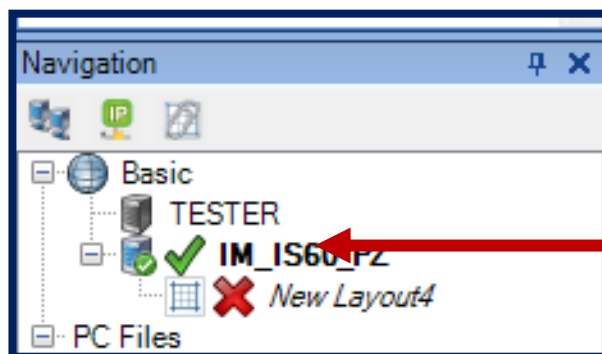
Select your machine in the navigation now to bring up your active window.

There will be a green check mark or red X next to your machine and new layout.

With your active marking window (controller page) open your can now start marking by live streaming. However your layout is not currently saved to your controller. It is always best practice to save your layout before printing.
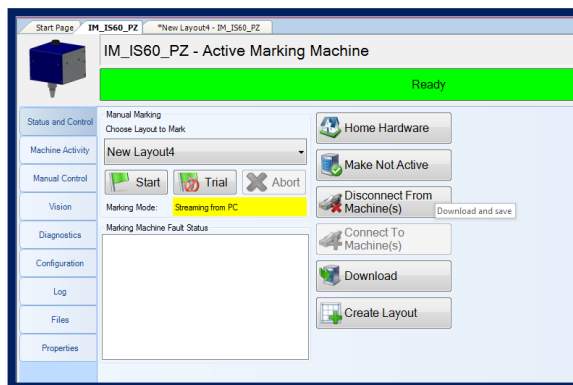
To save your layout to your controller you will need to download and save where the program will prompt you to rename your layout.

Select the download button on your controller page.
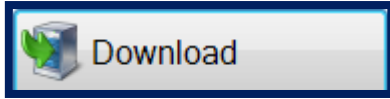
Once you have selected the download button

2 prompts will ask you if you want to save all filed before downloading.

You will choose YES

And a save layout as screen will open and prompt you to rename your layout
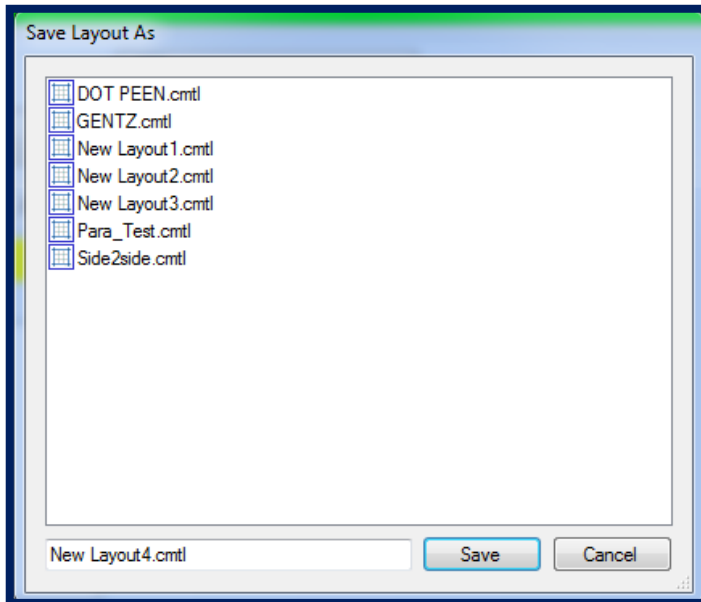
Name your layout with your desired name that you would like the layout to be named and save.

Your marking window will change to not Initialized while the layout is downloaded and saved to your controller.
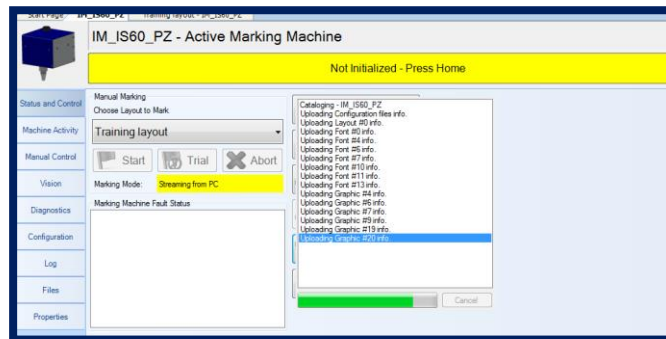
Once the download has completed the machine will do a home routine and the status banner will say ready.

You will also notice that the navigation pane now shows a green check next to the layout and the machine. This tells us that all of the changes where downloaded successfully.
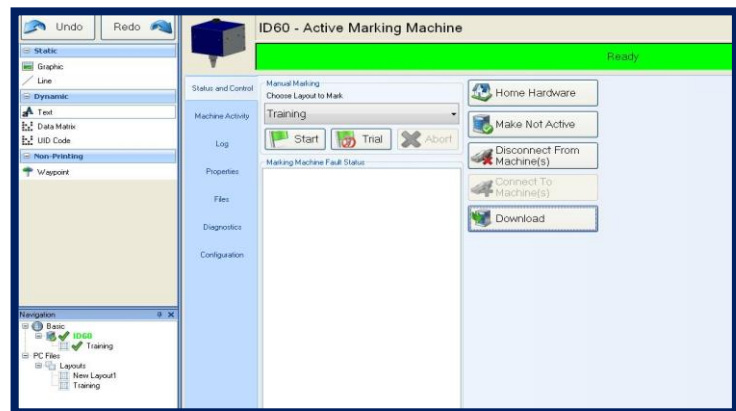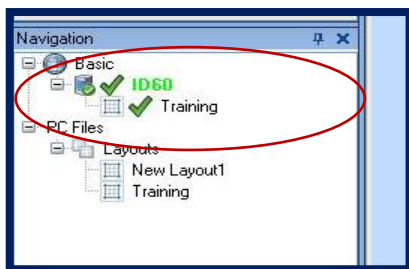
Marking

Now that the program exists on the controller we can start marking.

From the controller page you will see a drop down menu labeled "Choose Layout to Mark" this is the list of layouts that exist on the controller.

We will select Training since this is the only layout that exist on our controller.

You are then able to Press the "Start" or "Trial" button to run the layout.

The only difference between Start and Trial is the marking pin. When you click Trial the machine will run the layout but without the marking pin turned on. This is useful for checking mark position and sizing.
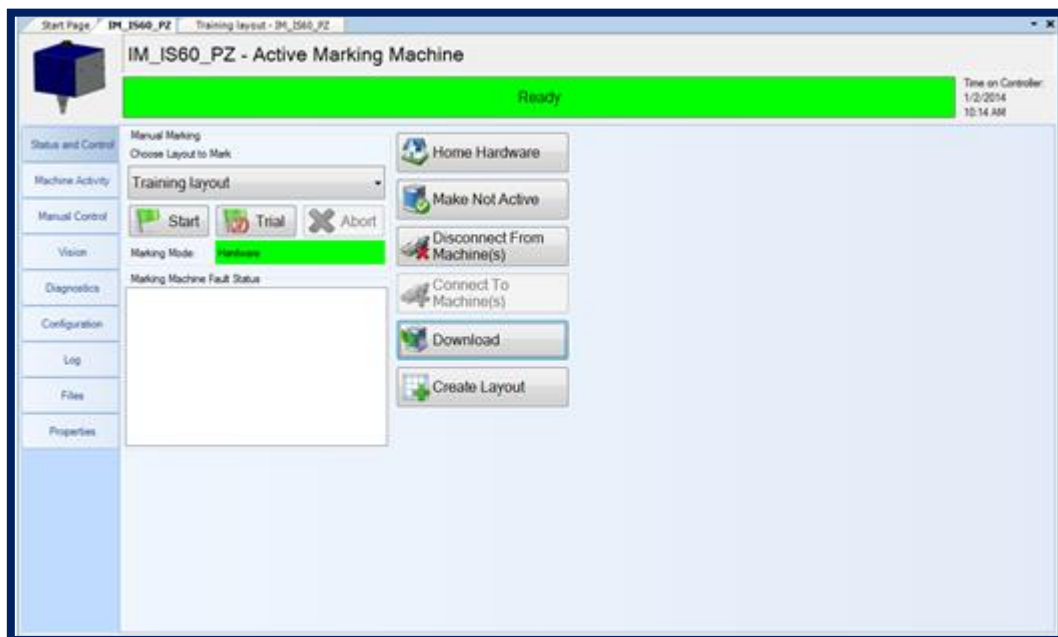
Should there be a problem once you start the marking cycle you can click the abort button to stop all motion and abort the marking process.

The machine will stay in the aborted state until you press "Home".

The home button will clear the abort fault or any other fault that you would encounter. It will also send the machine to the home position.
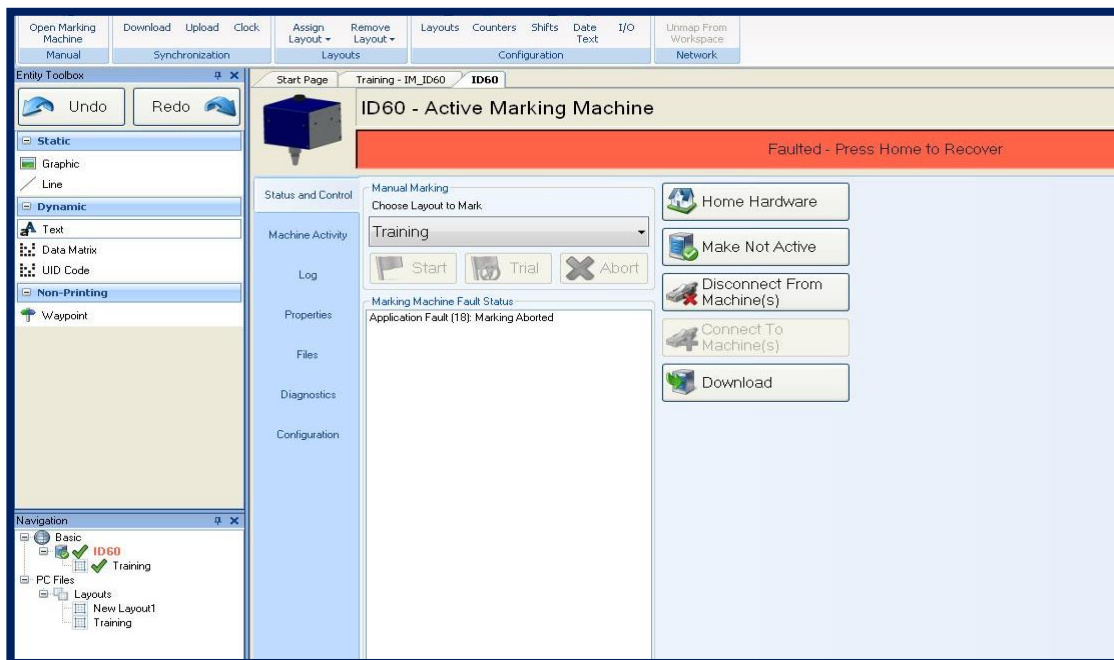
Marking Stylus Setup

Before starting the marking cycle you will need to setup the pin to part distance and air pressure

Pin

Part

.188-.250" Setup Distance (Range)
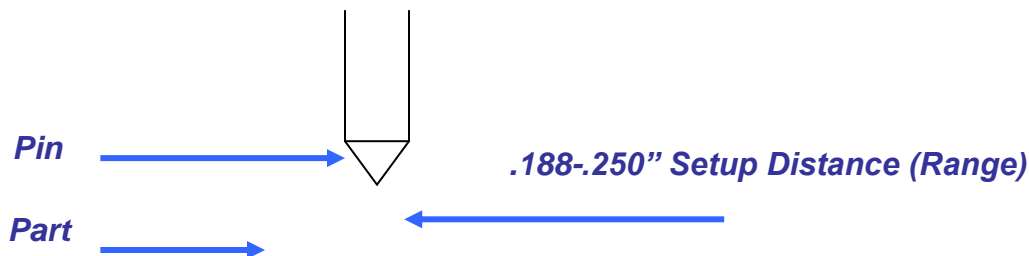
Setting up a Counter

First you'll want to setup the counters parameters. Let the software open fully, then on the ribbon menu across the top of the software select your active machine

This will open up the counters dialog. Select the Counter 0 and setup the parameters for what you're looking to do.

NOTE: The number of digits in the "Final Number" will dictate the amount of digits the counter uses.
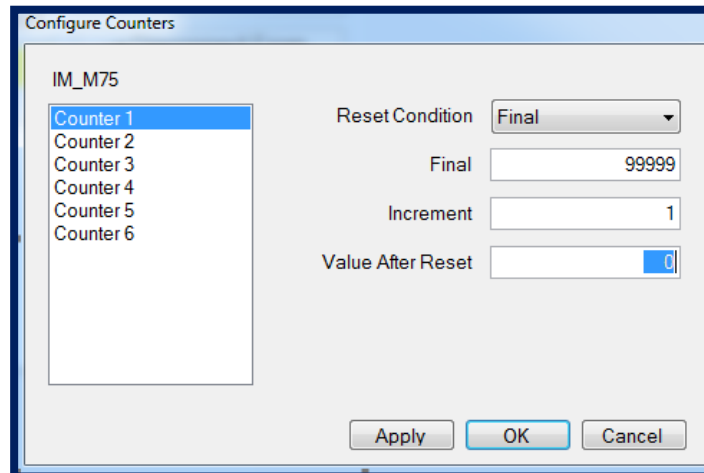
See here are typical settings. The counter will max out at 99999 and then after it reaches that number it will reset. There are many other reset conditions which you can pick from.

To use this counter in your program. Simply add the code %C1 (For Counter 1) anywhere in your string and the counter will be added there.

(See this example)
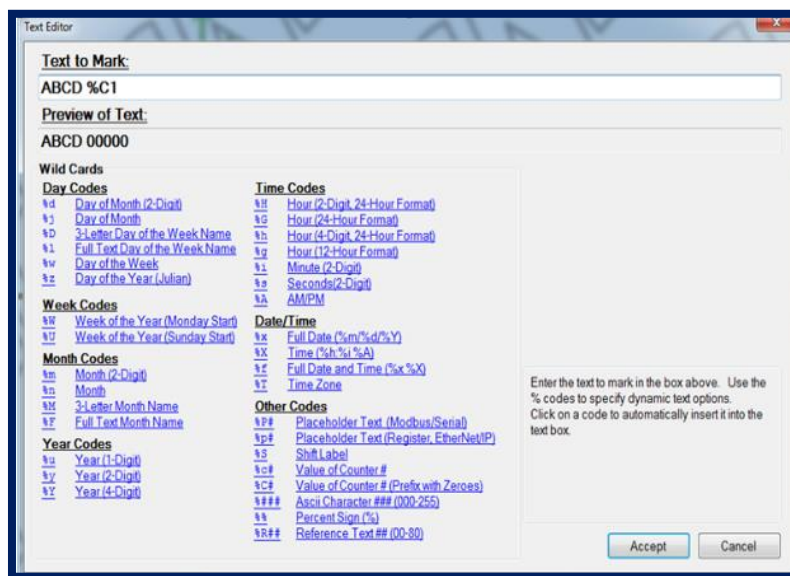
You can use this as many times as you like in any number of programs. To use another counter repeat the steps above and just use the Counter Number which corresponds to your desired setup.

Ex; %C2 for "Counter 2" %C3 for "Counter 3"

Finally to view and override the current Counter values, on the diagnostics tab (Along the left edge of the controller page) you will find a "Counters" tab and here you can view and set the values of any given counter.
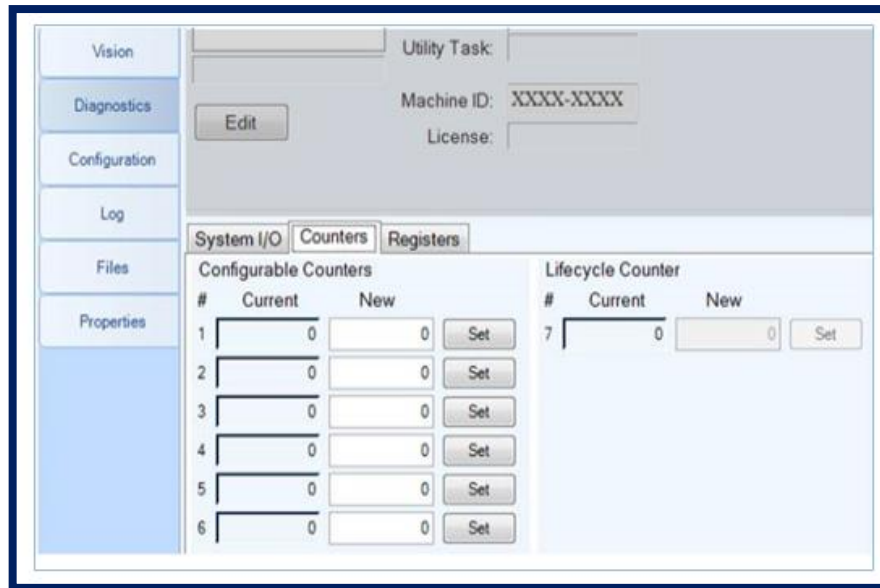
Setting up Shifts
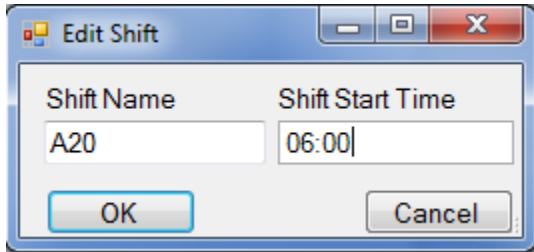
Let the software open fully, then on the ribbon menu across the top of the software called Shifts.
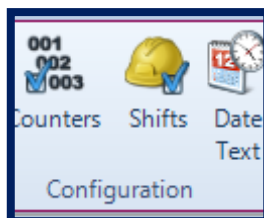
This will open up the Shifts dialog box. Select Add to add a new shift.
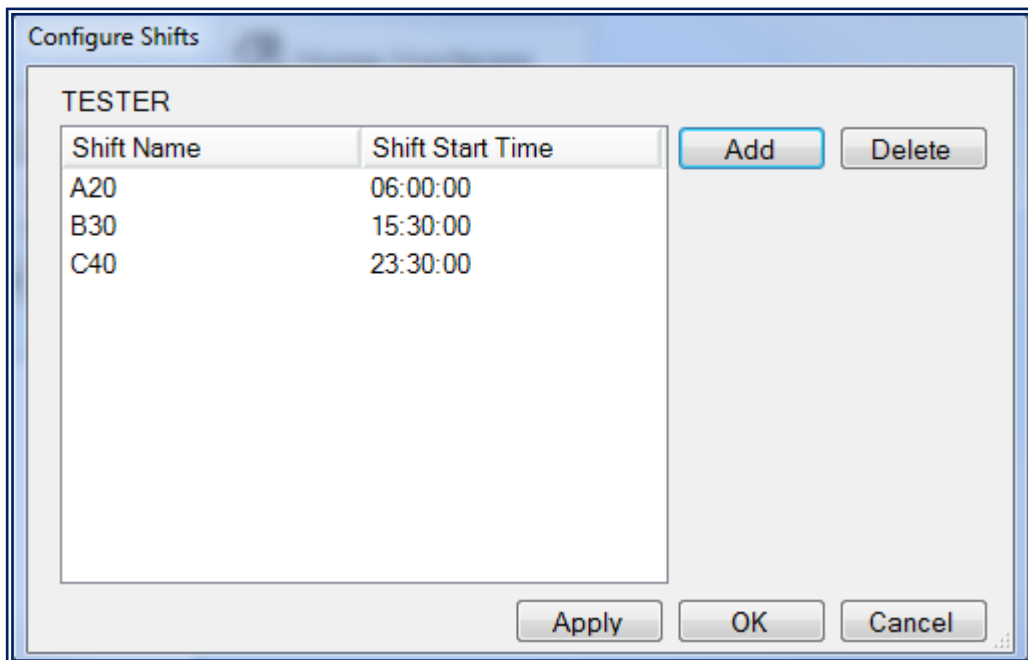
It will bring up an edit shift box where you will name a shift and the shift start time.

(Note Shift name will print on the part.)

You can add as many shifts as you would like.

Select the shifts you want to the program to use and select Apply.

Then you will create your text with a %S to add the shift to your layout.
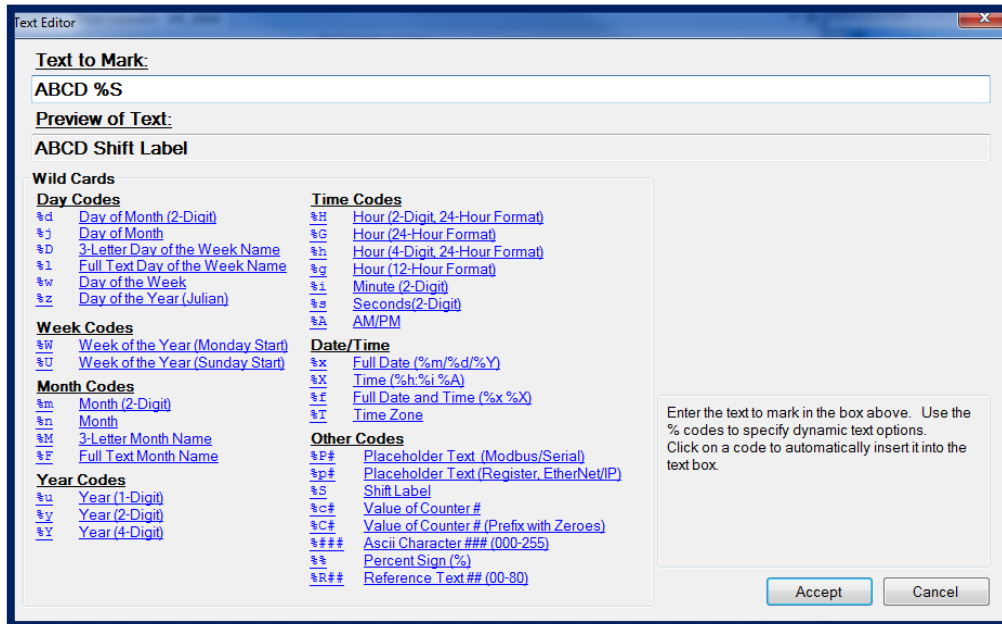
Then you will go got your controller page and do a download. The software will know what shift it is by the time you allocated.

Using the Rotator

(Optional Add On)
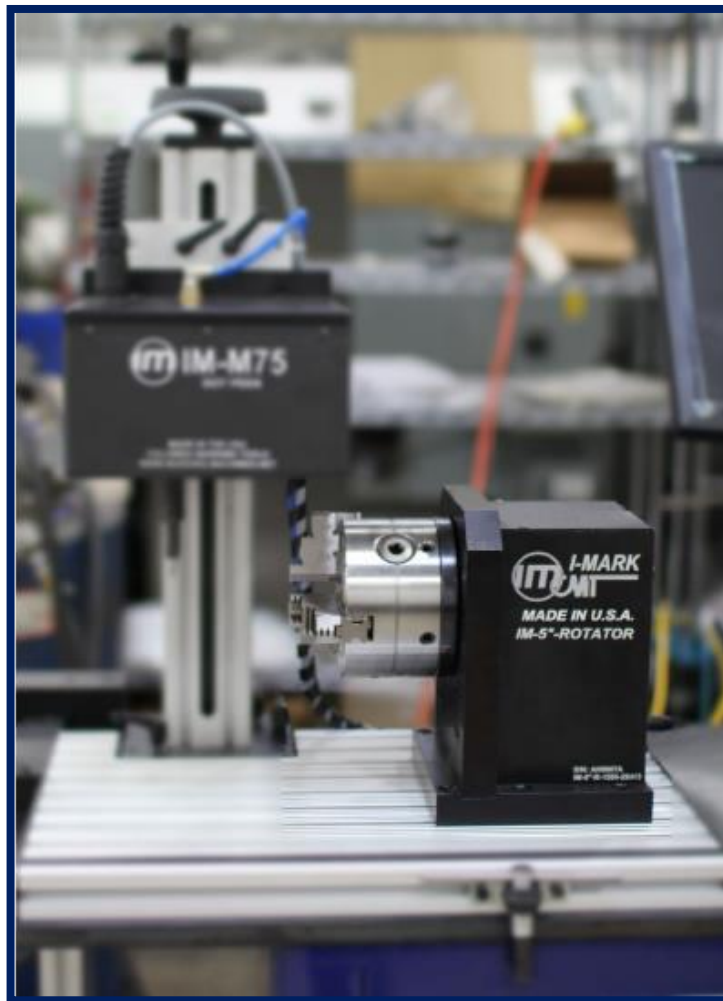
Creating a layout with the Rotator enabled.
From the "Home" Menu select the "Create New Layout" button in the software.

On the "Create Layout" dialog choose your controller type from the list on the left and then on the right side of the screen
choose the Axis configuration whose Axes 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.
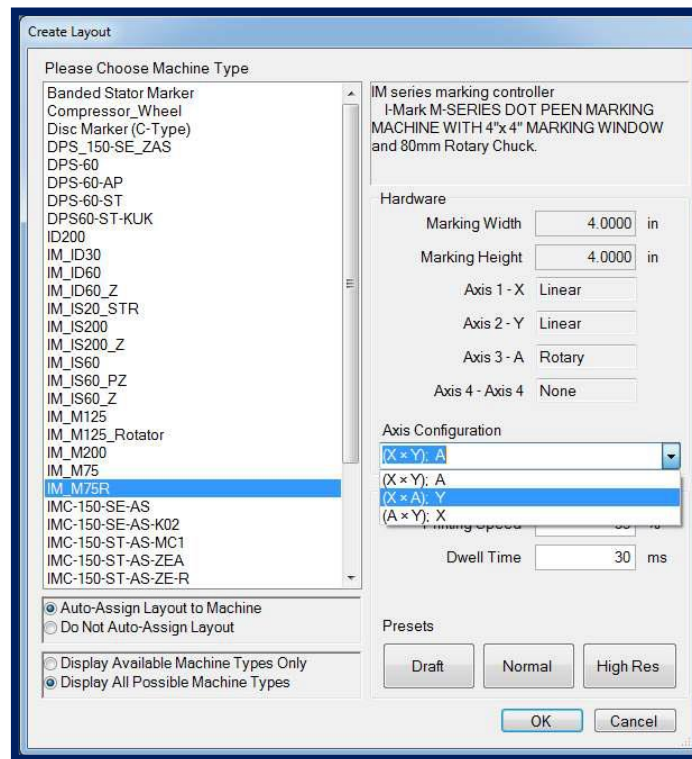
After you've selected a configuration whose axis is a rotary type (A in this case), the dialog will show a hidden field for the Part Diameter. This data in this field must be entered correctly in order to ensure that the scaling of the marking around the circumference of the part is accurate.

NOTE: If your part has multiple surfaces with varying diameters, the diameter at or closest to the desired marking location should be entered here.
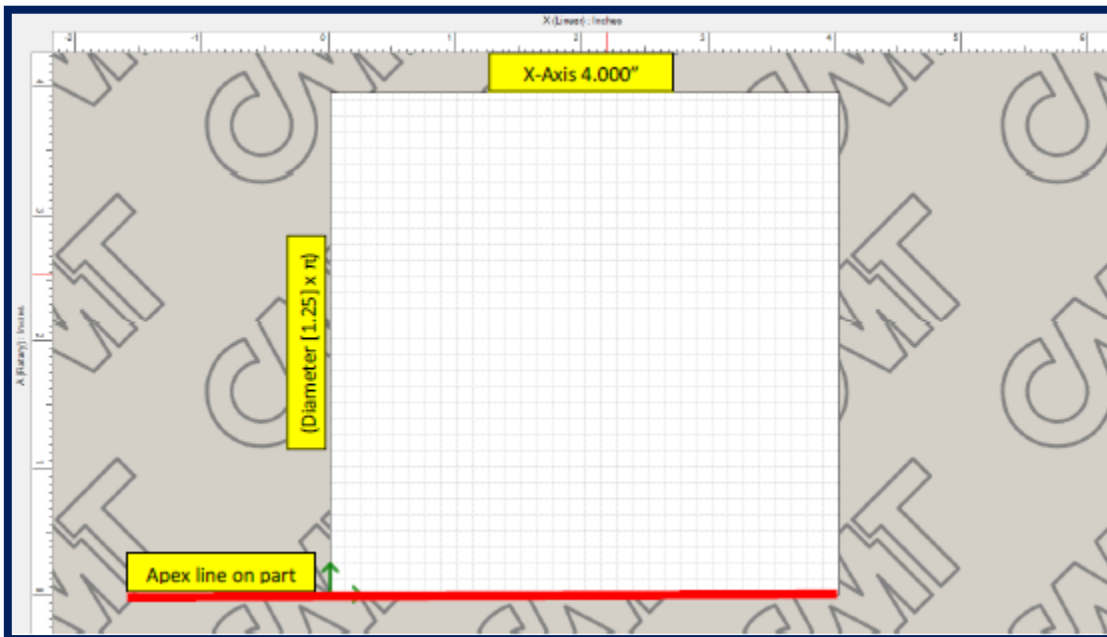
This is how the layout form will look if you've entered the same values I have in this example.

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 marking 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.

- ←X-Axis→+

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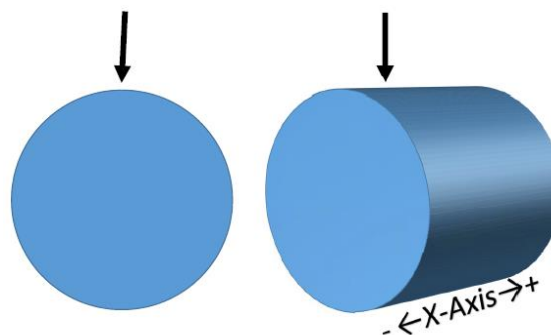
Then when the pin is directly over top of the desired marking surface, select your text entity tab on the marking layout and right-click on it to show the context menu.
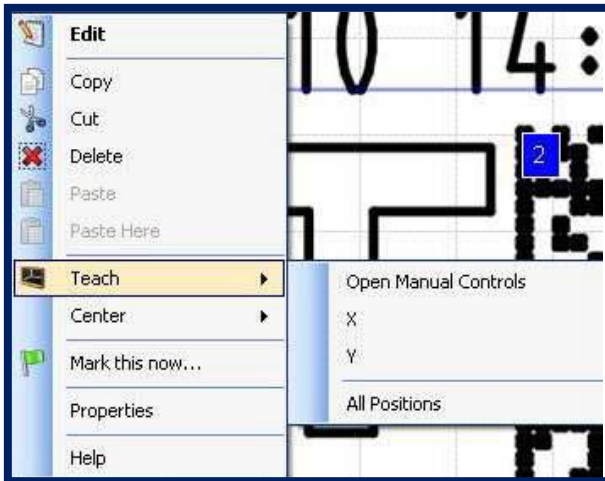
Select "Teach → All Positions".
After setting the position of the text to be equal to the current position of the marking axis, you'll see that the text on the grid has moved to the relative position of the axis.
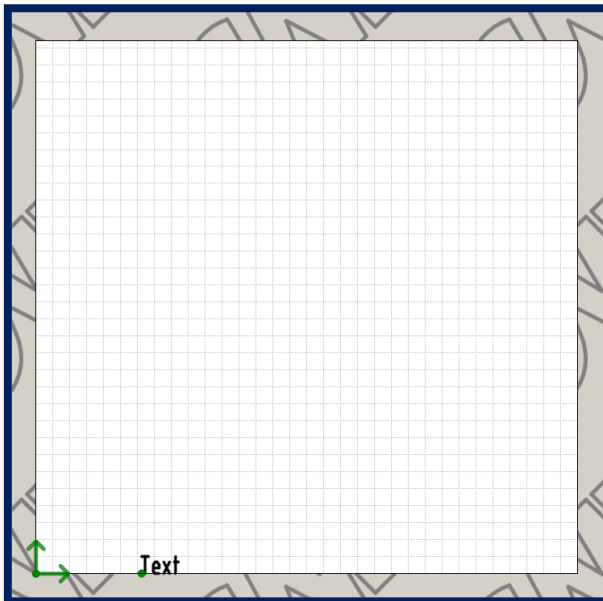
The current position is X = .7800, Y = 1.3248, A = 0.000

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.
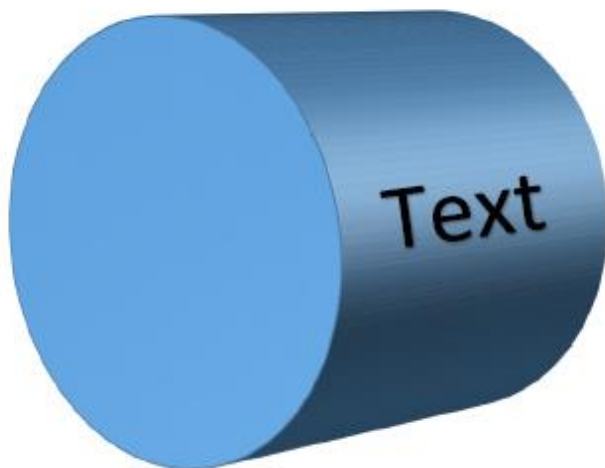
Text

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

If you flip the orientation of the text entity to be writing 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.
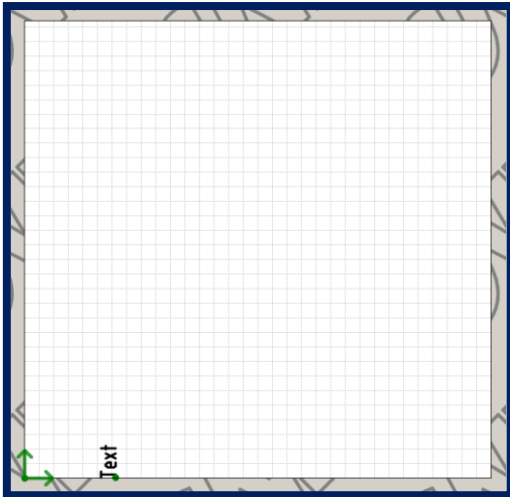
The resulting mark from this orientation will be as such.
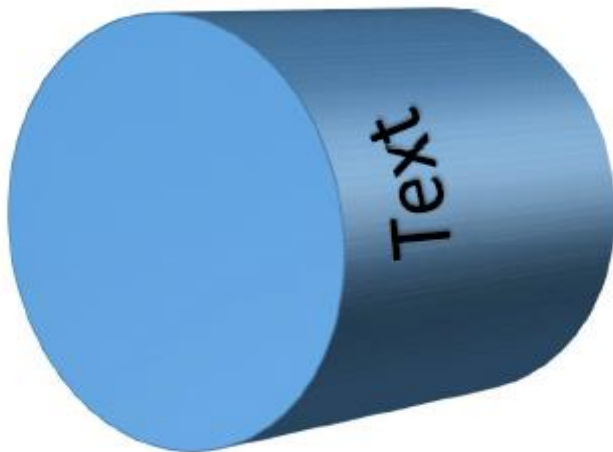
Image shows the part rotated after marking to show location of text.

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 and the rotator is all that moves for marking.

Start Button

I-Mark start button which is purchased separately from CMT.

The start button will be used to execute a particular program over and over without needing to interact with the software.

This is useful if a PC is not available during the time of marking or simply not wishing to use a Mouse/Keyboard to execute marking.

Plug the 25 pin connectors into the back of the I-Mark Controller in the Input and Output connections appropriately.

Open the I-Mark software and locate the Layouts button on the controller   ribbon

This is the Layout Configuration dialog. Use the drop down box to assign the desired marking layout into slot 0.

When I-Mark receives the start input from the external push button, it   will execute whichever program has been assigned to Slot 0:

After you have setup the program desired into Slot 0 then press the "Download" button on the controller page for the settings to take effect.

Serial Data String

I-Mark has the ability to 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 ones 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 you have 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 start 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 (Carriage 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 times any time 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.

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APPENDIX

Configuring IP Address

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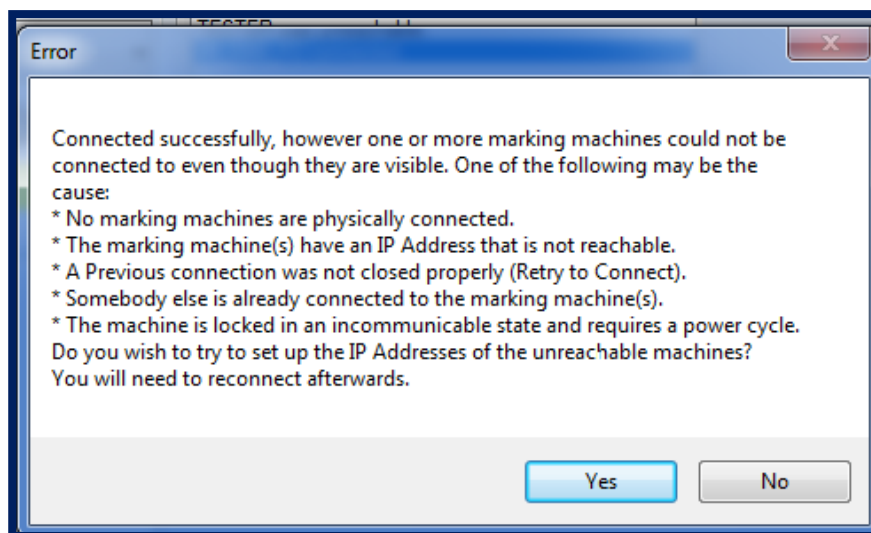
Select yes to obtain the machines current IP address and suggested local values.

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.
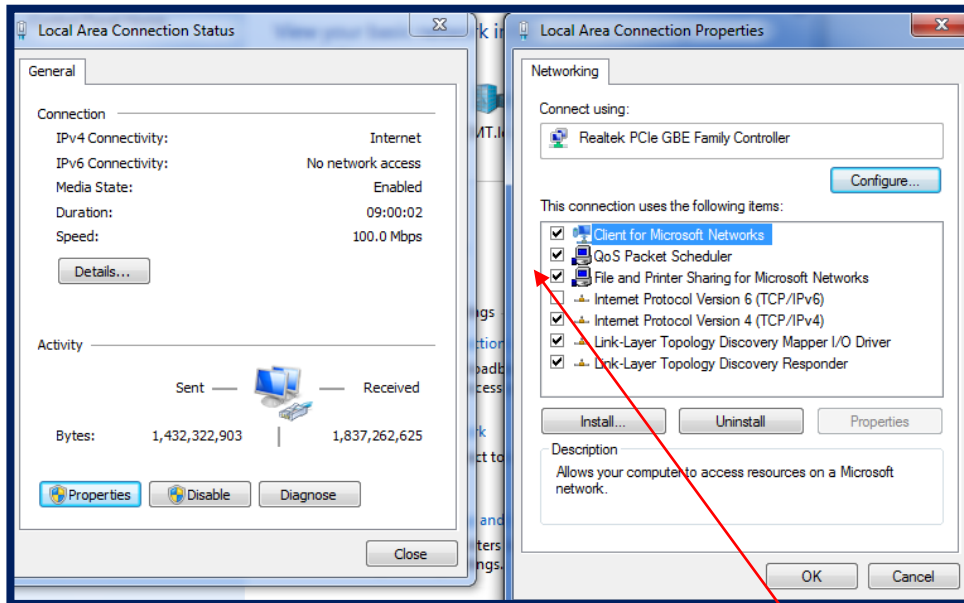
Open your local area connection.

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.

This IP configuration menu below will open
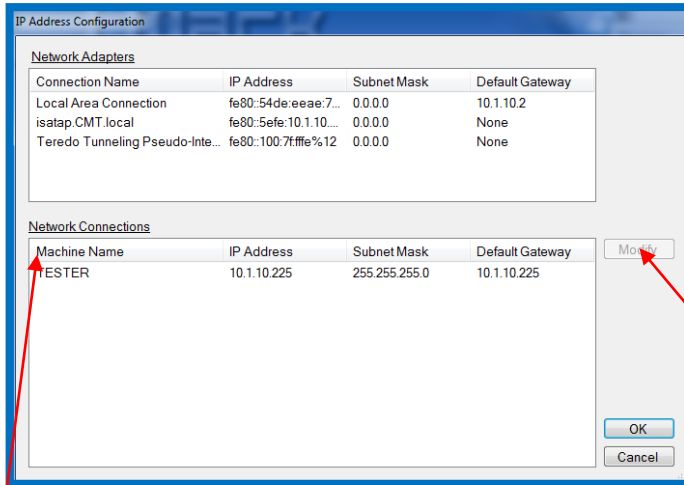
Select your machine under network connections and select modify.
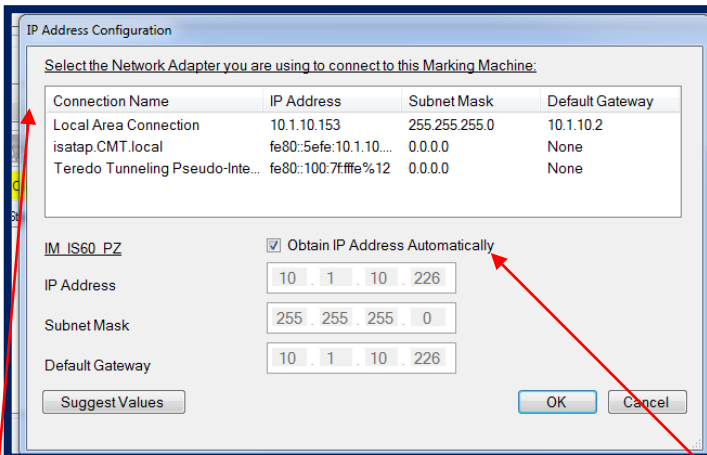
After selecting Modify.

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.

IMIDPH   **IMIDSPRING**   **IMIDPIN**

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.

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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 se-lect it. The Configure Binary Selection dialog should then appear as shown below.
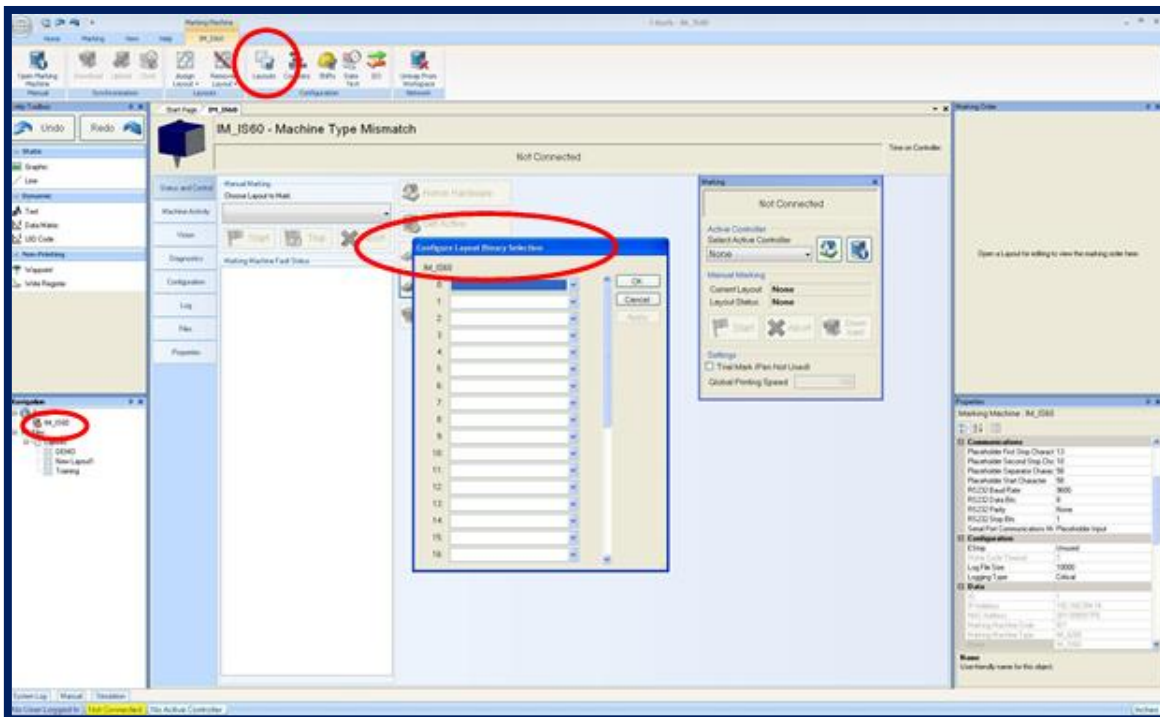
Once the Configuration dialog is open you can select each layout that you would like assigned to the corresponding binary bit. The image below shows an example of this.

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.

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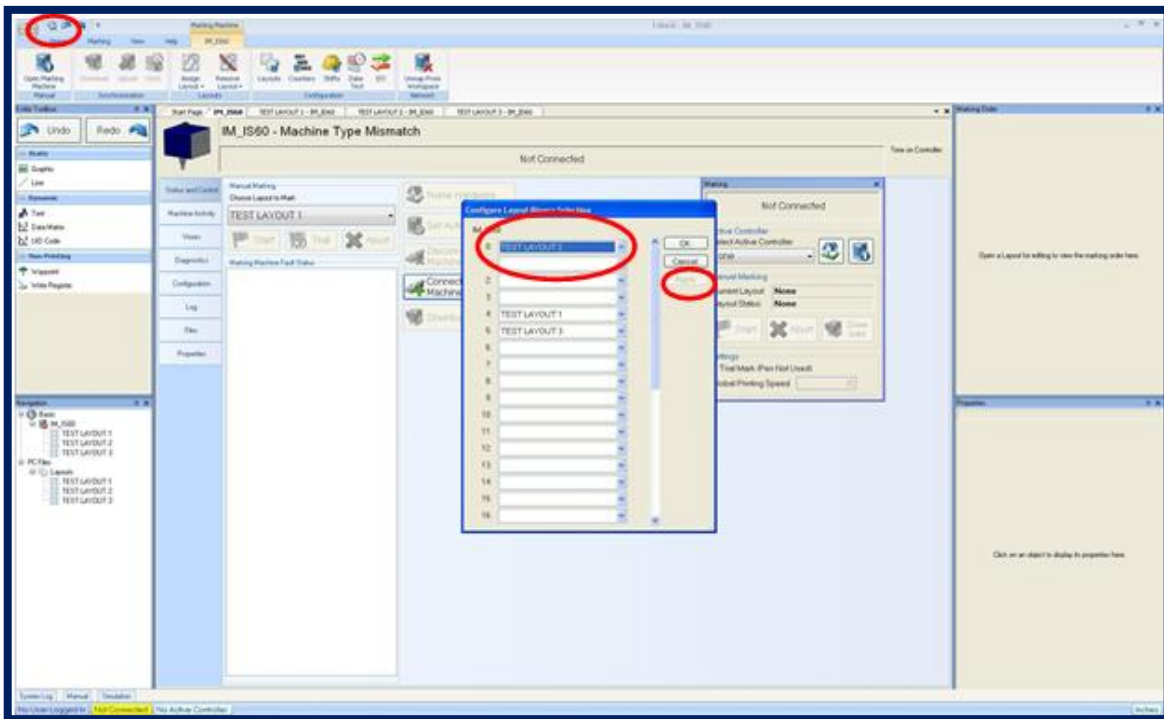
After you have saved your new binary configuration you will need to download it to the controller.

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.)
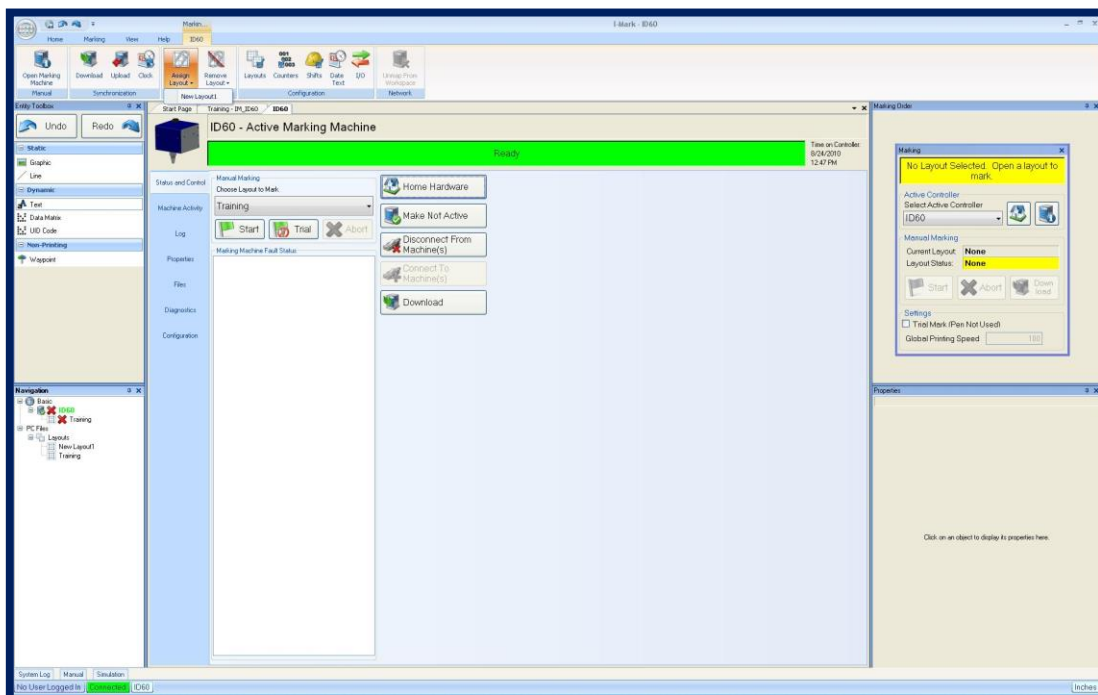
Firmware Update

This Document is intended for updating firmware on your I-Mark System controller. It is good practice to update your system firmware whenever you install the latest version of the I-Mark Software package.

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

Ensure that the machine is connected and in the "Ready" State before performing the update. The machine is connected and ready when the status bar is green and indicates "Ready"

You will then need to select the Diagnostics tab on the left side of the controller page. Once you have completed step #3 your screen should look like the image below
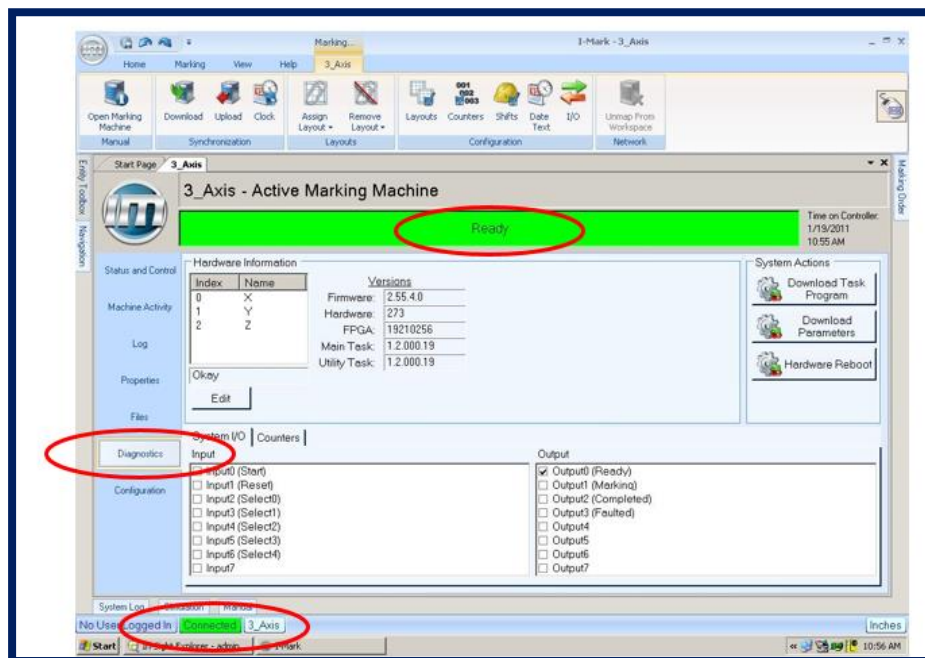
Once you are on the "Diagnostics" tab you will need to click the "Download Task Program" button located in the upper right corner of the screen. This will start the firmware download.

A status box will appear showing the status of the download. Note:

DO NOT   INTERURPT THE DOWNLOAD PROCESS OR DISCONNECT POWER FROM THE MACHINE DURING THIS TIME!!!!!
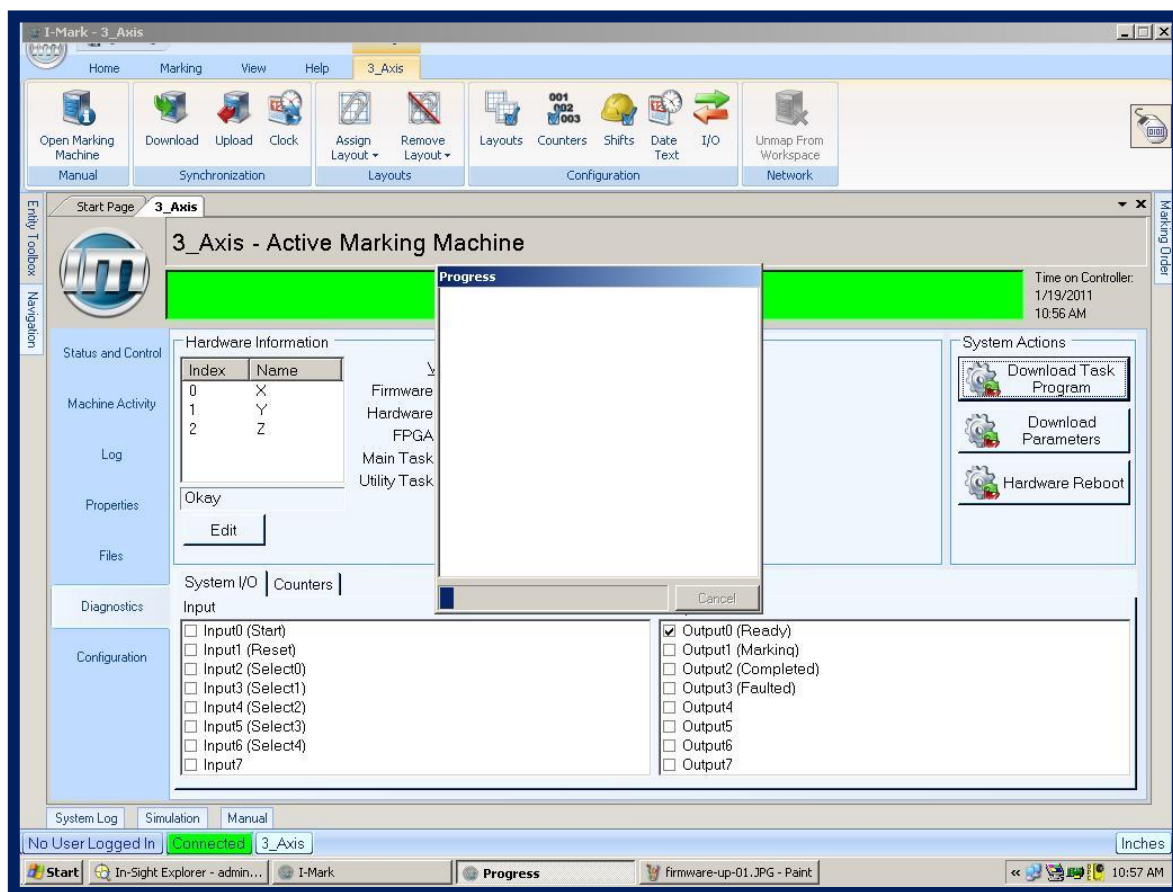
Once the download has completed you will be prompted to restart the system. To re-start the system you may click "Hardware Reboot" or cycle power on the I-Mark system control box.
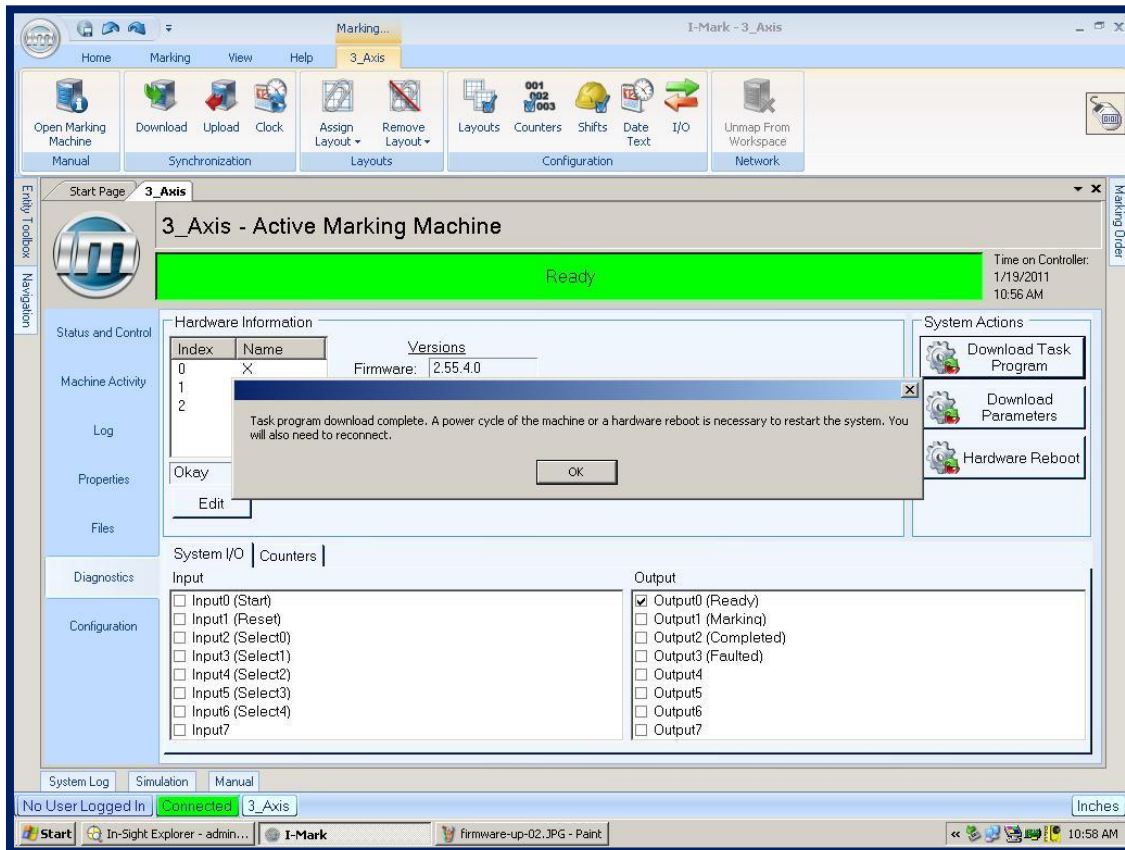
I-Mark Connection and setup guide
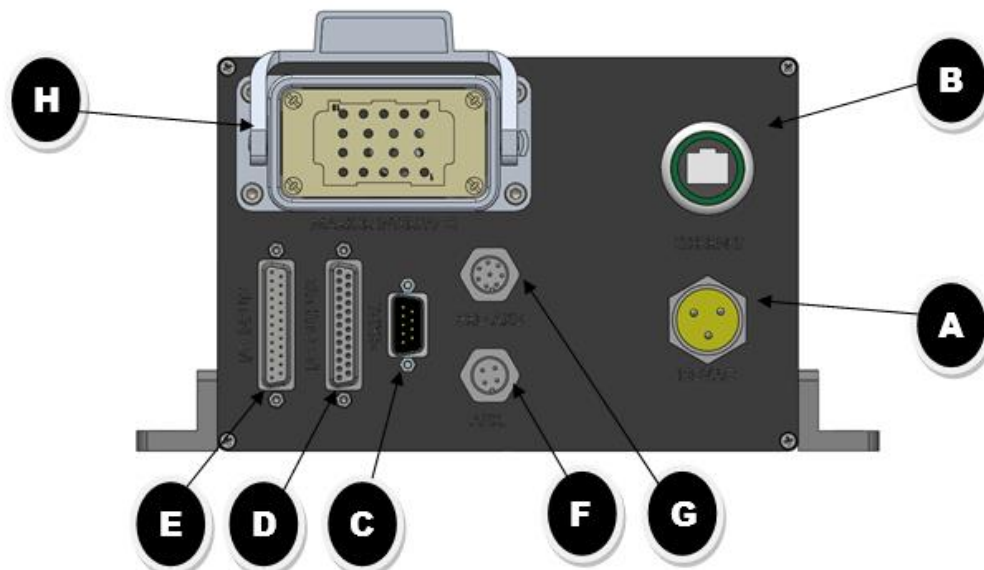
TABLE 1.0

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
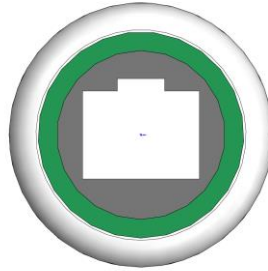
TABLE 1.2 ETHERNET CONNECTION

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.
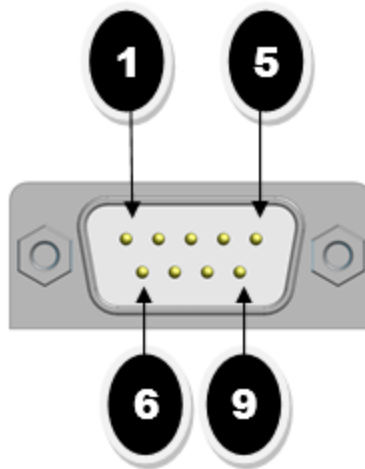
TABLE 1.3 SERIAL DATA PORT

PIN	RS232	PARAMETERS	
1	DCD	BAUDRATE	9600
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 PLACE-HOLDER

[:]   "DATA TO BE MARKED"   [CRLF]

START OF STRING

DATA TO BE PRINTED BY MARKING HEAD

END OF STRING
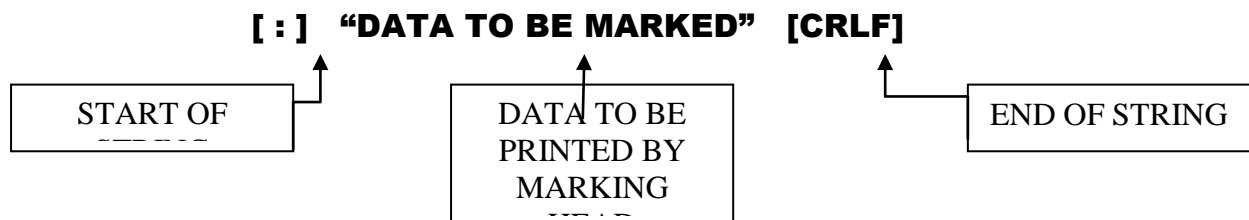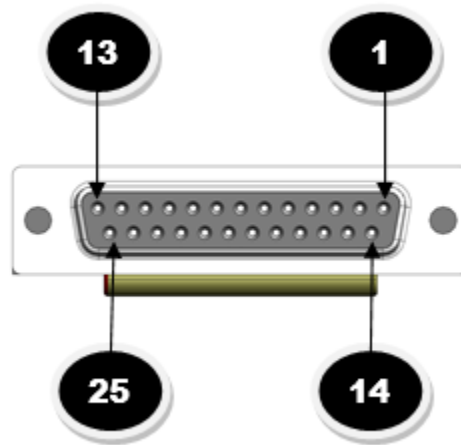
TABLE 1.4 I/O OUTPUT CONNECTIONS

PIN	DESCRIPTION
1	OUTPUT VOLTAGE [24VDC]
2	OUTPUT COMMON [0VDC]
3	READY
4	MARKING
5	CYCLE COMPLETE
6	FAULTED
7	USER OUTPUT
8	USER OUTPUT
9	USER OUTPUT
10	USER OUTPUT
11	AUX. [24VDC] (1.0a MAX)
12	AUX [0VDC]
13-25	RESERVED

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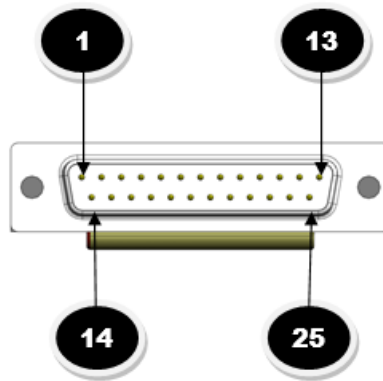
TABLE 1.5 I/O INPUT CONNECTIONS

PIN	DESCRIPTION
1	OUTPUT COMMON [0VDC] (2-4)
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
9	USER INPUT
10	INPUT COMMON [0VDC] (5-9)
11	AUX. [24VDC] (1.0a MAX)
11-25	RESERVED

Recommended spare parts

Part	Part Number	Frequency
IMID PIN Standard Carbide Pin	**IMIDPIN - Pin** • Most commonly replaced part • Strongly recommended • Life span depends on the application • Material • Production Rate • # of character in mark	3-6 Months average lifespan for moderate production. May be re-sharpened 2-3 times.
Part# IMIDPHA IMID Series Complete Assembly	**IMIDPHA – Pin housing assembly** • IMIDPH – housing and O ring • IMIDSPRING - spring • IMIDPIN - pin • Strongly recommended • Quickest changeover	Once per year
IMIDPIN01 Pin Spring	**IMIDSPRING- Pin spring**	Once every 6-12 months. Depending on usage.
Part# IMIDPH IMID Series Pin Housing	**IMIDPH- Pin housing and O ring**	Once a year.

I-Mark™

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Recommended Fixed Dot spare parts

Part	Part Number	Price	Frequency
	IMFDPIN - Pin • Most commonly replaced part • Strongly recommended • Life span depends on the application • Material • Production Rate • # of character in mark	$49.50 EA Delivery: 1-2 days	3-6 Months average lifespan for moderate production. May be re-sharpened 2-3 times.
	IIMFDPHA- Fix dot housing *Fix dot housing *pin shaft *shaft bearing *spring *shaft bushing *carbide marking pin	$385.00 EA Delivery: 1-2 days	Once per year
	IMFDSPRING- Pin spring	$6.50 EA Delivery 1-2 days	Once every 6-12 months. Depending on usage.
	IMFDPH- Pin housing and O ring	$221.00 EA Delivery 1-2 days	Once a year.

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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

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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

Warranty: 1 year parts and labor - http://www.columbiamt.com/CMT-Main/Catalogs/CMT_Warranty.pdf

Limited One-Year Warranty

Columbia Marking Tools manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry-standard practices. Columbia warrants that the hardware products it manufactures will be free from defects in materials and workmanship. The warranty term is one year beginning on the date of invoice, as further described in the following text.

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Columbia will repair or replace products covered under this limited warranty that are returned to Columbia's facility. To request warranty service, you must call Columbia's Return Material Authorization or Service Department within the warranty period. If warranty service is required, Columbia will issue a Return Material Authorization Number. You must ship the products back to Columbia in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment. Columbia will ship the repaired or replacement products to you (freight prepaid) if you use an address in the continental U.S., where applicable. Shipments to other locations will be made freight collect. Columbia Marking Tools will not take responsibility for the cost of transportation required for the unit to be returned to the purchaser/owner.

NOTE: Before you ship the product(s) to Columbia, back up the data on the hard-disk drive(s) and any other storage device(s) in the product(s). Remove any removable media, such as diskettes, CDs, or PC Cards. CMT does not accept liability for lost data or software. ** CMT owns all parts removed from repaired products. Columbia Marking Tools will use new and reconditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Columbia repairs or replaces a product, its warranty term is not extended.

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