# Getting Started

**DESIGNED, MANUFACTURED and Distributed by**

4140 Utica Ridge Rd. • Bettendorf, IA 52722-1327

Phone: **1-877-774-3279 (EASY)** • Fax: **1-877-775-3279** •

# WARNING!

**Trademarks**

This publication may contain references to products produced and/or offered by other companies. The product and company names may be trademarked and are the sole property of their respective owners. AVG Automation disclaims any proprietary interest in the marks and names of others.

# CONTENTS

## INTRODUCTION

**The EZ iMarquee** is an intelligent LED message display used with industrial control systems like PLCs or SCADA software. It stores the user-programmed messages along with the conditions under which each message will be displayed. The EZ iMarquee will then continuously poll the control system's controller, such as the PLC, evaluates programmed conditions, based on user-programmed logic built into the intelligent marquee, and then displays corresponding messages to inform all plant personnel. All of these functions can be done without changing a single line of ladder logic in your existing PLC!

This "Getting Started" guide will take you through the steps necessary to get your EZ iMarquee up and running in the shortest possible time.

## SYSTEM REQUIREMENTS

### Hardware:

- EZ iMarquee
- 110/220 VAC Power cord
- EZ iMarquee Programming Cable (EZ-PGMCBL) unless you purchase the EZ iMarquee equipped with the exclusive EZ-WiFi Module.
- Serial (RS232/422/485) or Ethernet cable to connect the iMarquee to a PLC.

### Software:

EZ iMarquee Programming Software (Version 1.0 or higher)

### PC Requirements:

- A PC with Windows XP, Windows 7 or Windows 10 operating system.
- Serial port or a USB port can be used with a USB to Serial adapter.

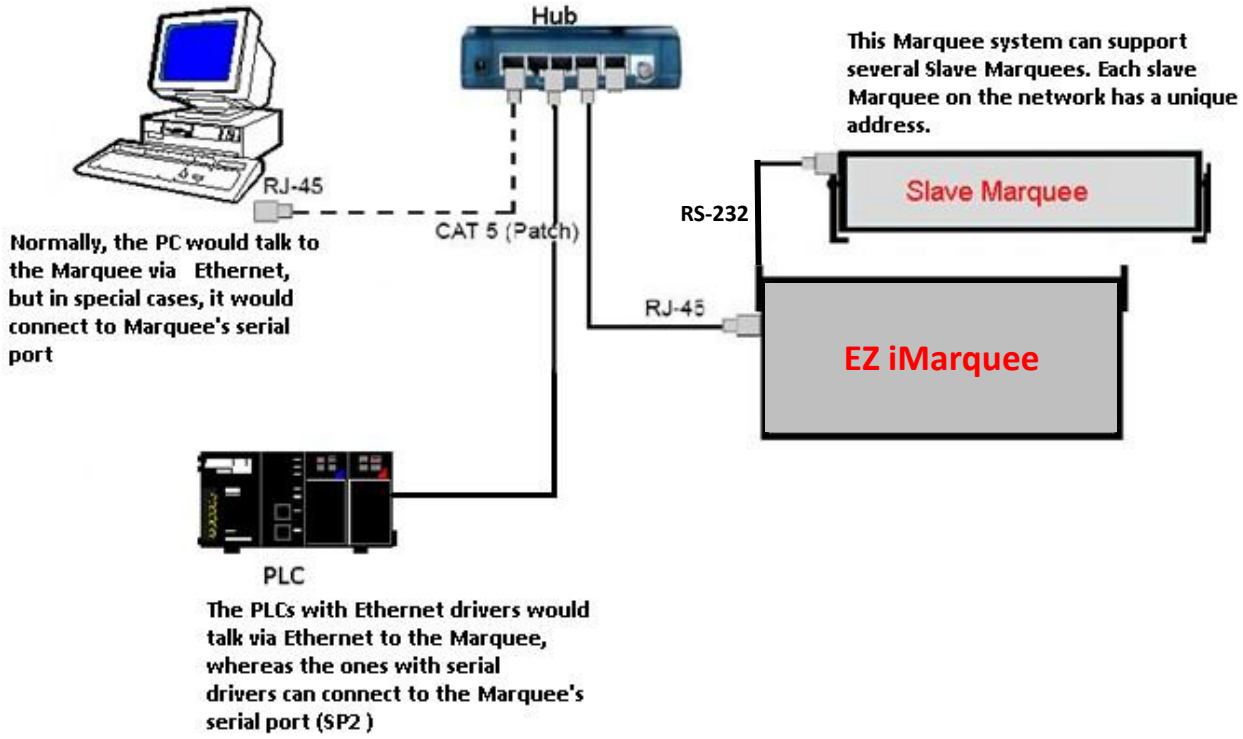
**Please Note: EZ iMarquee software does not support any Windows OS earlier than Windows XP, i.e. the editor will not work on Windows 95, 98 or 2000.**

The programing software also contains an extensive Help section, which provides detailed information on EZ iMarquee programming.

## SYSTEM OVERVIEW

A typical Marquee control system comprises of a PLC (Programmable Logic Controller) to drive the logic and a Master/Slave Marquee to display the messages based on the PLC logic. The EZ iMarquee itself can drive a network of several Slaves.

**Note:** A PC is only required to initially program the Marquee with various messages and to import the tag database from a respective PLC (if applicable)

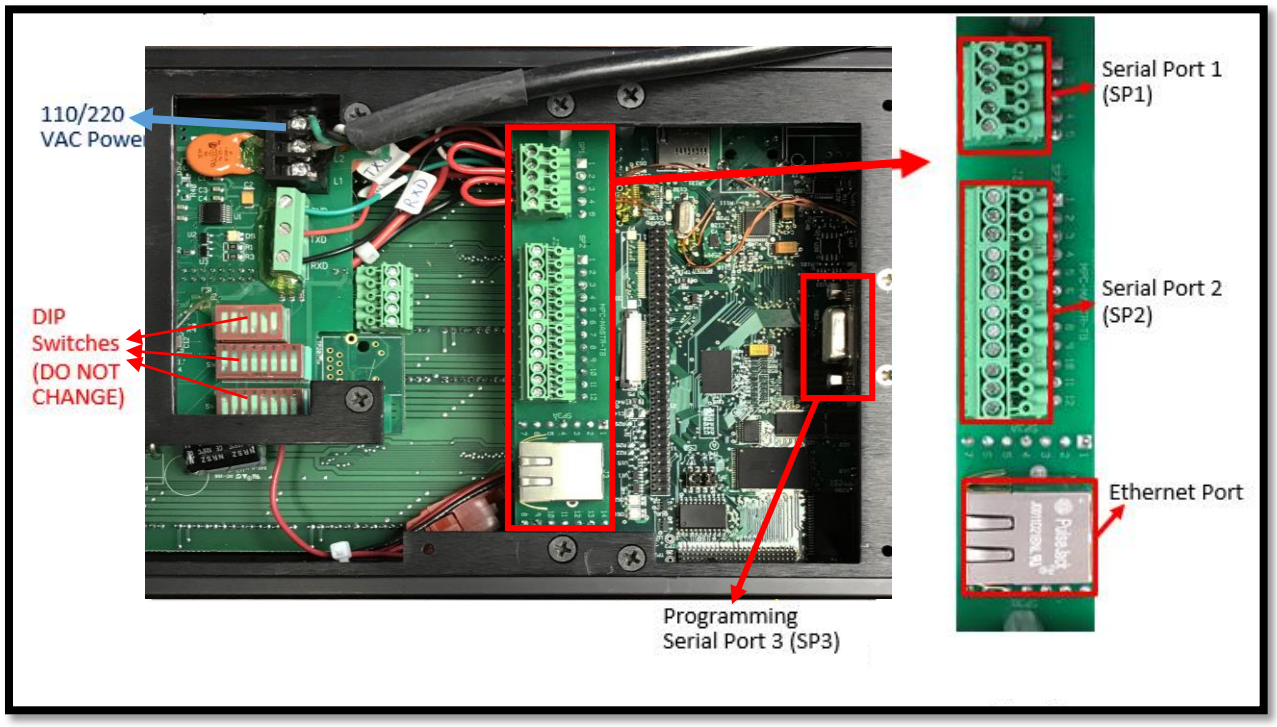



## MODELS

- 2 Line 10 Characters
- 2 Line 20 Characters
- 2 Line 40 Characters
- 4 Line 20 Characters
- 4 Line 40 Characters

## PORTS AND WIRING

The EZ iMarquee has an Access/Cover plate on its backside. This is a gasket cover plate with two sealed grommets for power and communication cables. The gasket and the grommet seal must be intact to retain NEMA 12 rating. Once you remove the cover plate by removing the four access screws on the plate, you have access to wiring terminals required for marquee communication.


**Dip Switches:**

CAUTION

**CAUTION!**
**Please DO NOT TOUCH any of the DIP switches. They are for factory use only! Changing DIP switches may make the product inoperable.**


Phone: 1-877-774-EASY (3279) • Email: techsupport@ezautomation.net
4140 Utica Ridge Road • Bettendorf, IA 52722

## POWER

The iMarquee's power input is 110-220VAC @ 50-60Hz. Three terminals are provided for connecting operating power to the unit. These terminals are located on the control board.
Power Input terminals are labeled L1, L2, and chassis ground. Always connect the ground terminal to the safety ground.

Connect the AC Power Cord to L1, L2, and GND (Black or Brown to L1, White or Blue to L2, Green or Green w. Yellow stripe to GND).

Note: Wire Color is just a recommendation based on industry standard practices.

| Terminal Block | Pin | Lead | Wire *(US)* | Wire *(European)* |
|---|---|---|---|---|
|  | ⏚ | (GND) | Green | Green/Yellow stripe |
| | L1 | Load | Black | Brown |
| | L2 | Neutral | White | Blue |

## COMMUNICATION PORTS

### SERIAL PORT 1 (SP1)

Serial Port 1 (SP1) is pre-wired in the factory as shown below, i.e. Pins 1-2 on SP1 are jumped together. This jumper connects the serial port on the Message Controller board within the marquee, to the serial port of the Message Display board in the marquee. **The jumper is required for the Marquee to display messages sent from the controller.**

SP 1

| Pin Number | Function |
|---|---|
| 1 | RX (Message Display Board) |
| 2 | **TXD** (Message Controller Board) |
| 3 | **RXD** (Message Controller Board) |
| 4 | TXD (Do Not Use) |
| 5 | **GND** |

This port IS **NOT** used for PLC communication or PC to iMarquee programming.
This port can be used to connect a SLAVE marquee to the iMarquee over RS232.

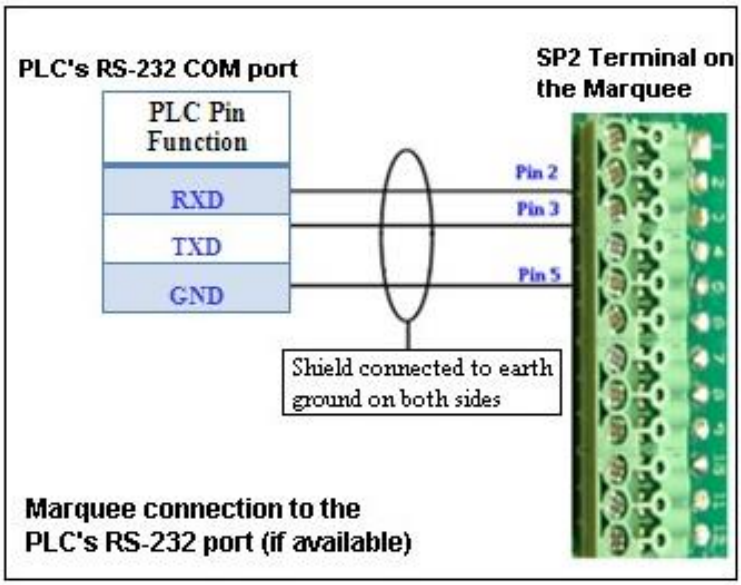
To connect a slave unit to the master iMarquee, please use terminal numbers on SP1:
2 (Tx)
3 (Rx)
5 (GND)

## SERIAL PORT 2 (SP2)

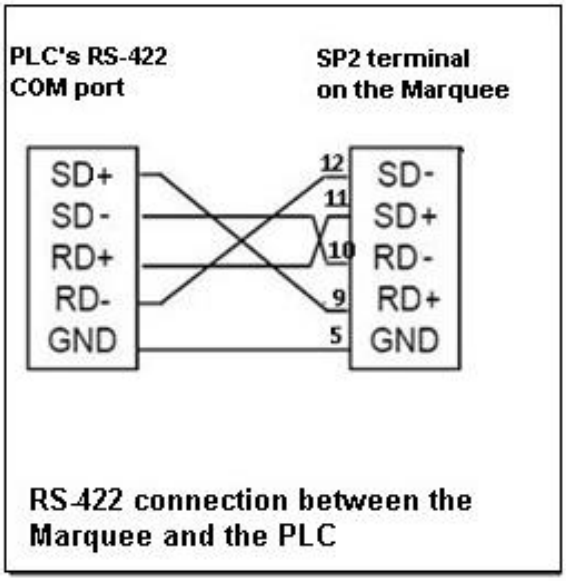
**The SP2 connector** is used to connect the iMarquee to the PLC via **RS-232 or RS 422/485** communication. If the user wants to connect the PLC to the iMarquee over Ethernet, no wiring is required to this port.

SP 2

| Pin Number | Pin Function (from the Marquee's perspective) | Marquee serial Communication |
|---|---|---|
| 1 | N.C. | |
| 2 | TXD | RS- 232 |
| 3 | RXD | RS- 232 |
| 4 | N.C. | |
| 5 | GND | RS- 232 / 422 / 485 |
| 6 | N.C. | |
| 7 | N.C. | |
| 8 | N.C. | |
| 9 | RD+ (Receive Data) | RS- 422 / 485 |
| 10 | RD- (Receive Data) | RS- 422 / 485 |
| 11 | SD+ (Send Data) | RS- 422 / 485 |
| 12 | SD- (Send Data) | RS- 422 / 485 |




Marquee connection to the PLC's RS-232 port (if available)




RS-422 connection between the Marquee and the PLC

## SERIAL PORT 3 (SP3)

**The SP3 connector** is used to connect the iMarquee to the PC via an iMarquee programming cable (**EZ-PGMCBL) or if ordered with Wi-Fi capability will have the EZ-WiFi Module pre-installed on the unit**. Once the IP address of the iMarquee is set by using the programming software and EZ-PGMCBL or over Wi-Fi, the user can use an Ethernet cable to transfer the program to the unit.

Connect the EZ-PGMCBL to the SP3 Connector using the female 9-pin D-sub connector. This port allows the user to change the IP address of the unit, download a new user program, or upgrade iMarquee application (firmware) over the serial port

To communicate with the iMarquee using the Programming software running on a PC, follow these steps:

1. Turn off the power to the unit, and connect serial port of PC to the serial port **SP3** on the iMarquee's Controller board using an EZ-PGMCBL.
2. Turn ON the power to iMarquee. Wait until the iMarquee boots up (about 30 seconds).
3. Now you will be able to communicate to the iMarquee from the PC through the programming software. You can check /modify IP parameters, download a new user program, or upgrade the Marquee firmware serially.
4. You can also run the iMarquee while being online with the Programming Software to monitor tags and/or troubleshoot the iMarquee.

*Note: If you have purchased an EZ iMarquee with an EZ-WiFi module then the SP3 port is connected directly to the EZ-WiFi module. Therefore to program the unit you only need to turn it on and connect to the EZ-WiFi and download over it. Please see EZ-WiFi manual for steps on how to connect.*

## ETHERNET PORT

The iMarquee's Ethernet port can be used to program the unit and also for PLC communication using PLC communication protocols such as Allen-Bradley's Ethernet/IP, Modbus TCP/IP, Siemen's ISO over Ethernet etc.

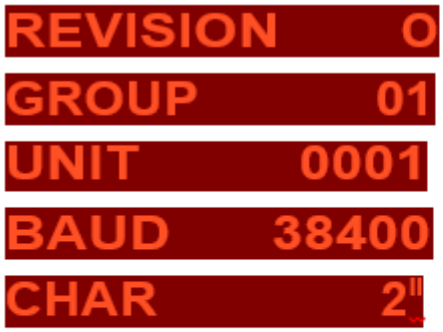
The Factory default settings are:

**IP Address: 192.168.0.1**
**Subnet Mask: 255.255.255.0**

This is displayed on the iMarquee during power up sequence. This can be changed by the user to suit their available IP addresses in their network.

## iMARQUEE MESSAGES ON POWERUP

When the Marquee is initially powered up, it automatically displays a series of Messages; mainly the Marquee attributes (Baud rate, Group #, Unit #, etc.) as shown below:




(Firmware Revision)

(Group Number)

(Unit Number)

(COM port Baud rate)

(Character size)

Once the controller board is activated, a scrolling message appears displaying the EZ iMarquee's IP address. Example:


After the IP address appears, the programmed messages (Power Up messages followed by PLC Messages) are displayed based on the PLC tag status and control parameters.

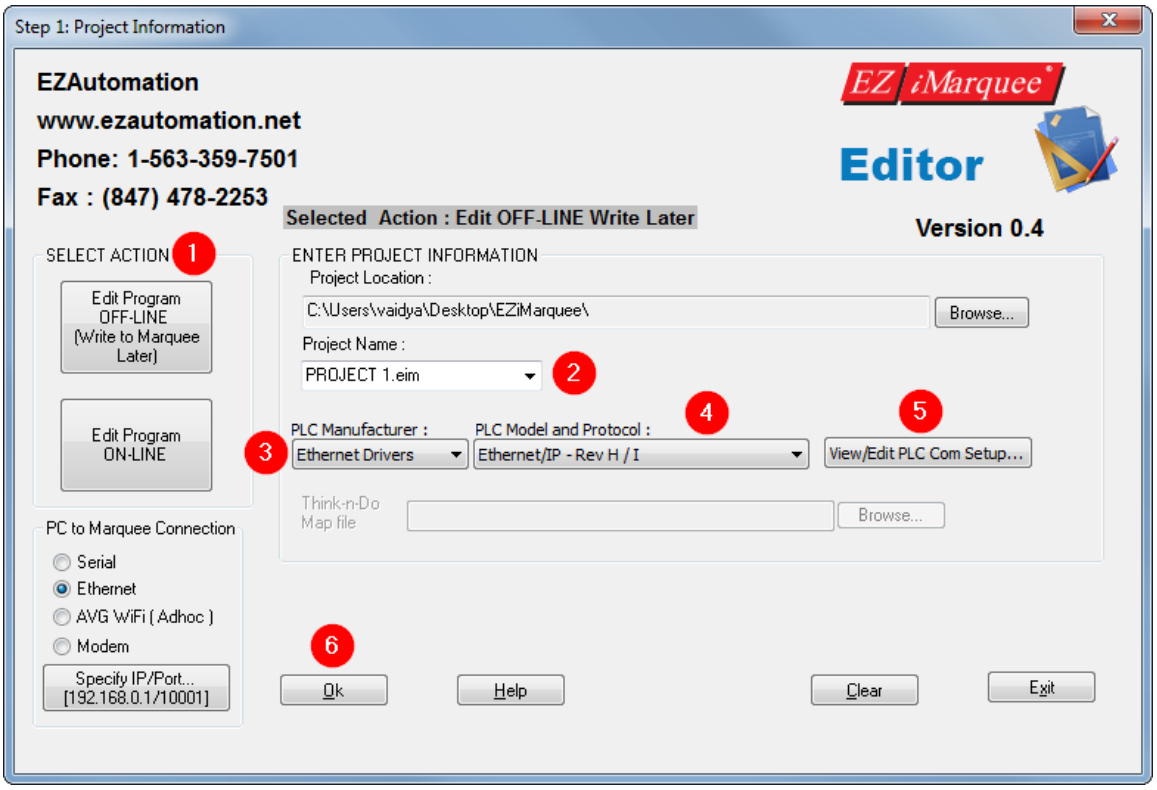


Phone: 1-877-774-EASY (3279) • Email: techsupport@ezautomation.net
4140 Utica Ridge Road • Bettendorf, IA 52722

## PROGRAMMING EZ iMARQUEE

The following example demonstrates how to start a new project using the EZ iMarquee programming software.

Launch the EZ iMarquee programming software and you will see the “PROJECT INFORMATION” window.




1) Click on “Edit Program OFF-LINE” button. (This is to create a project while being offline, iMarquee need not be connected to your computer).

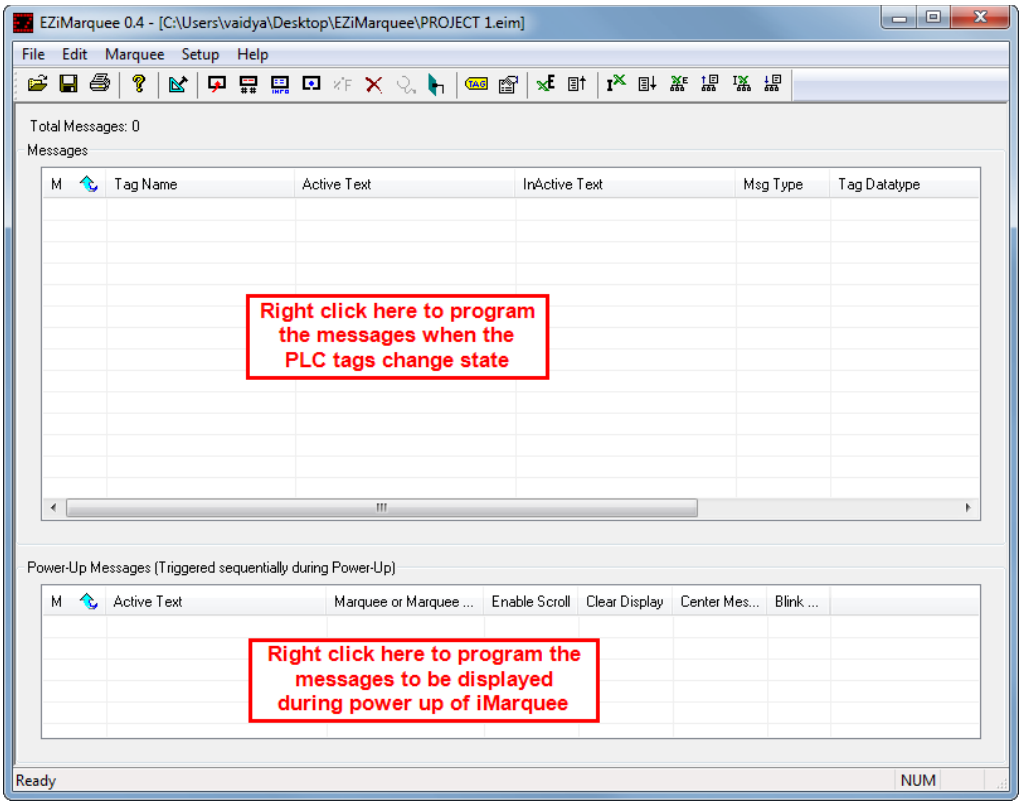
2) Enter a project name and click on the “Enter” key on your keyboard.

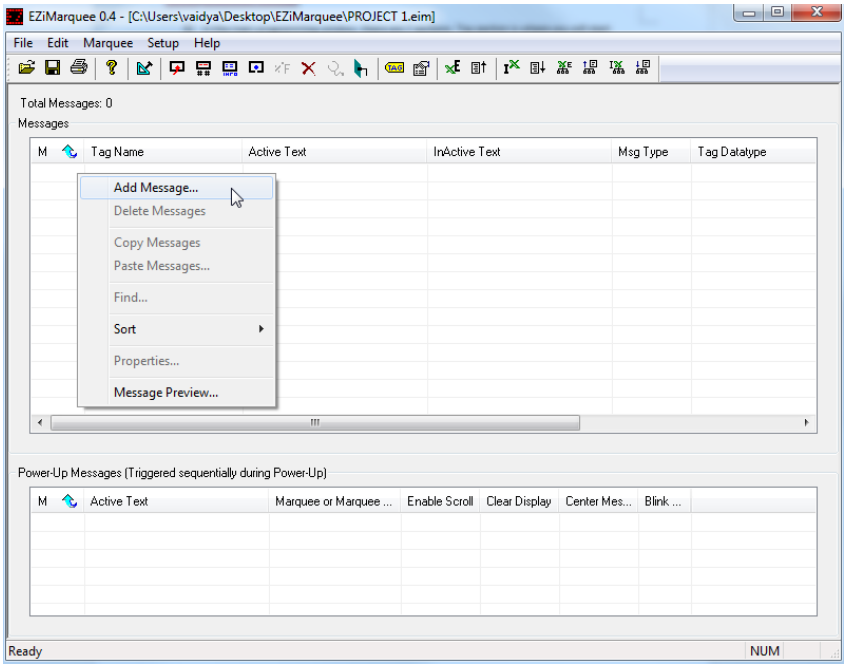
3) Select your PLC manufacturer. If you are connecting your PLC to the EZ iMarquee over Ethernet, select “Ethernet Drivers” or find the equivalent driver under the specific PLC Manufacturer. For simplicity all PLC’s Ethernet drivers are grouped under “Ethernet Drivers”.
If you want to connect iMarquee to your PLC via serial COMs, please select the respective PLC manufacturer from the drop down menu.

4) Select the PLC Model and protocol. If you have selected Ethernet communication between PLC and iMarquee, please enter the PLC’s IP address under “View/Edit PLC Com Setup”

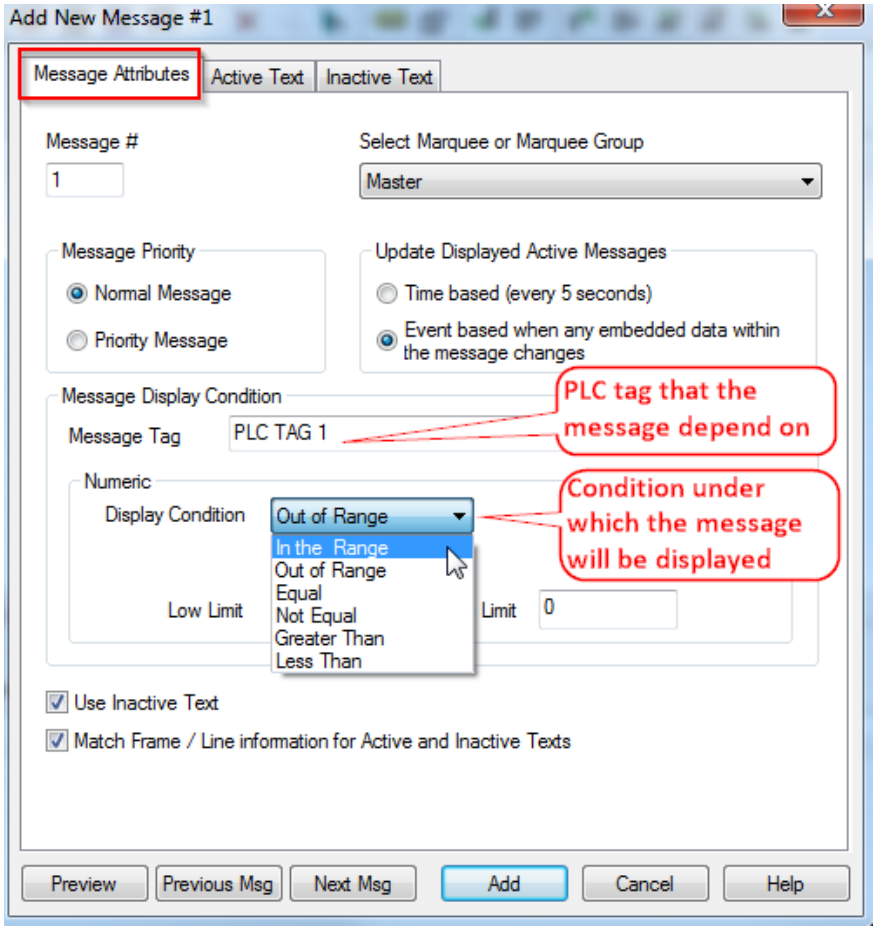
5) Click on “OK” button at the bottom of the window. This will open the main programming window, where you can start creating messages to be displayed on the iMarquee.

6) In the main programming window, there are two sections. Top section is where you will start adding messages by right clicking. These messages will be displayed on the iMarquee when the PLC tags change state.
Bottom section is where you add messages to be displayed on the iMarquee during power up.



7) Click on Add Message, the following window will appear.




Enter the number of the message in the message field. It has to be entered sequentially. You MUST not program message # 5 before message # 1.

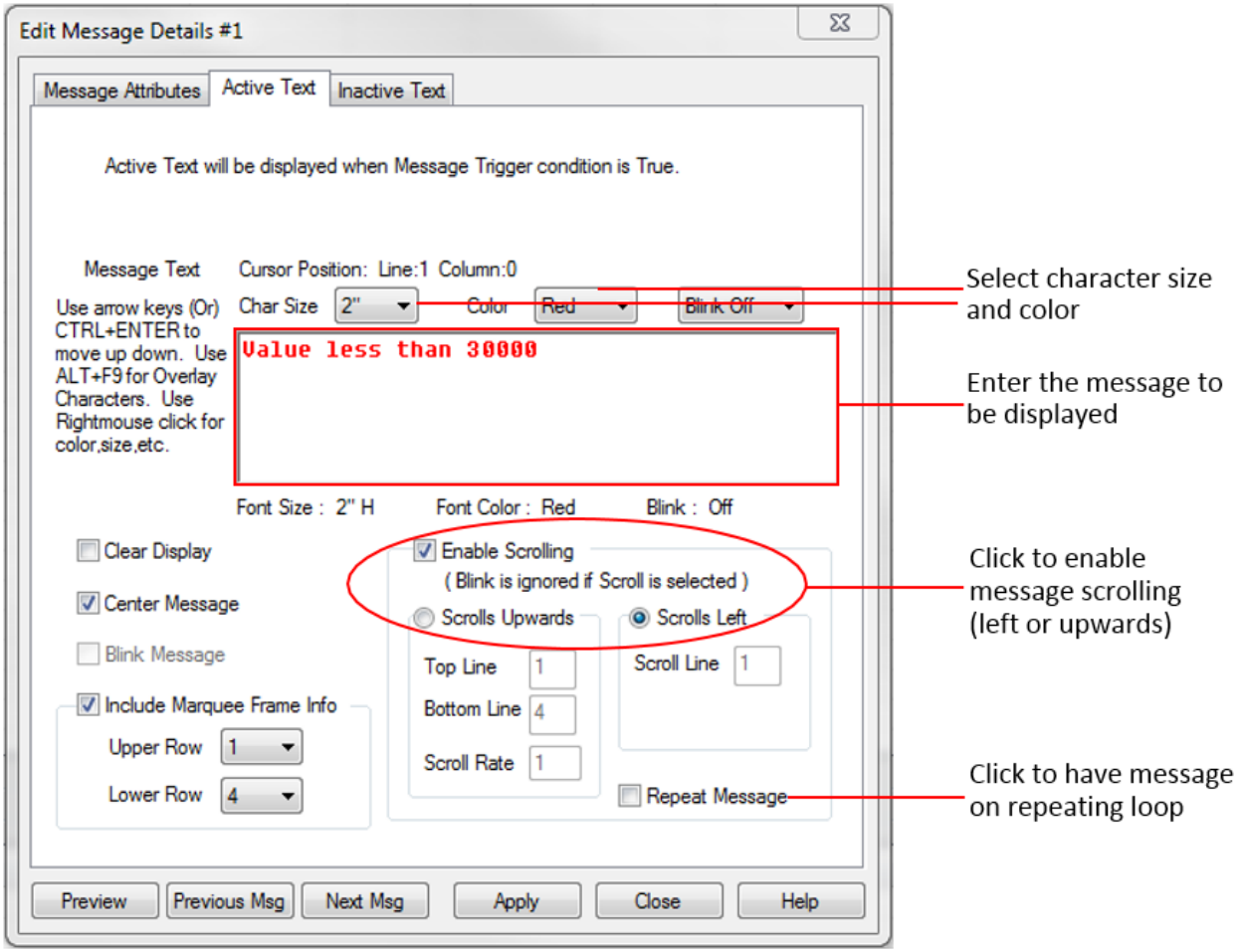
Choose Message Priority. If both the messages are triggered at the same time, iMarquee will display "Priority Message" first.

Message Display tags can be either Numeric or Discrete. Depending on what type of tag you enter, the Display condition changes. For example, when you choose a discrete tag, Display Condition will change to "ON" or "OFF". When Numeric Tag is selected, user can choose to display the message if the tag is "In the Range" or "Out of Range" etc.


You may also select whether or not to Use Inactive Text. If you choose to use inactive text, you can enter message text that will be displayed when the message is inactive (has not been triggered) under the Inactive Text tab. If you deselect it, here, the Inactive Text dialog will be unavailable (grayed out) and no message will be displayed when the message has not been triggered.

Select Match Frame/Line Information for Active and Inactive Texts if you want the inactive and active messages to display in the same frame and on the same line.

8) Click on the "Active Text" tab to enter the message to be displayed when the Message condition is fulfilled, and choose from the following options.




Type in the Message Text that you want to display when the Message Trigger Condition is TRUE (message is active). Place your cursor anywhere in the Message Text field and right click your mouse button to access a menu that will allow you to change the color or size of the text, or change it to blinking text. Highlight the text you want to change, right click, and select the color, character size, or blink attribute for that text. If you want to embed a Real Time Data Value, right click in the position you want the data value to appear and select Embed Tags from the popup menu.

You can choose how you want your message to appear on the iMarquee. Click in the box in front of Clear Display if you want the previous message to be erased from the display. If left unchecked, the previously displayed characters will remain on the display where this message does not overlay them.

For example:

| | Previous Message | New Message | Result |
|---|---|---|---|
| Checked | 1234567890<br>2nd LINE | ABC | ABC |
| Not Checked | 1234567890<br>2nd LINE | ABC | ABC4567890<br>2nd LINE |

Click in the box in front of Center Message if you want the message to be centered on all lines of the display. If left unchecked, the text will be displayed as entered in the message. Please note that left-scrolling messages cannot be centered.

Click in the box in front of the Blink Message option to "blink" the message. The entire message (including time, date and variable data) will blink ON and OFF when displayed. Characters that remain on the display from the previous message will also blink.

Click in the box in front of Include Marquee Frame Info to set the default state for the EZ iMarquee Frame Upper Row (or top) and Lower Row (or bottom) attributes on this message. The Upper Row attribute sets the top stick that will be used to display as a message. The Lower Row sets the bottom stick that will be used to display a message. Enter a number between 0 and 8 for the Upper Row and the Lower Row.

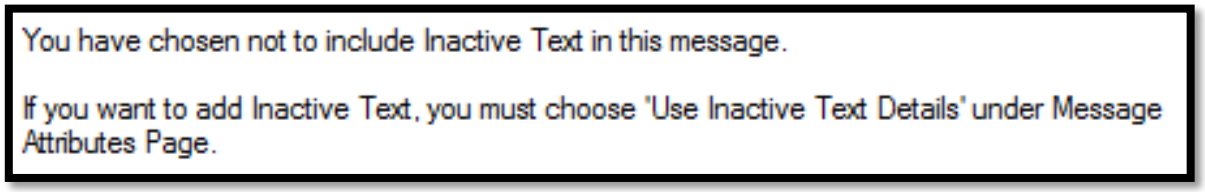
Click in the box in front of Enable Scrolling if you want the message to scroll on the display. Please be aware that If you have selected to Include Marquee Frame Info, you will not be able to select the lines that where you want the message to scroll (they will be grayed out), it will scroll on the lines selected under Include Marquee Frame Info.

Click on the box in front of Scroll Upwards to enable it with a check mark and the message lines will scroll up from a lower line of the display to the next line up of the display.
If you have selected Scroll Upwards, select the Top Line (from 1 to 4) and the Bottom Line (from 1 to 4) where you want the message to scroll. The bottom line value must be equal to or greater than the top line value.

Enter a Scroll Rate for the message. The value you enter here will determine the rate at which this particular message will scroll. The range for the Scroll Rate is 1 to 99 (0.1 to 9.9 seconds and the default is set at 1 second). Click in the box to enter a value for this option.

Select Repeat Message if you want the scrolling message to keep repeating until a new message is selected. If you leave this check box empty, the scrolling message will be displayed only once.

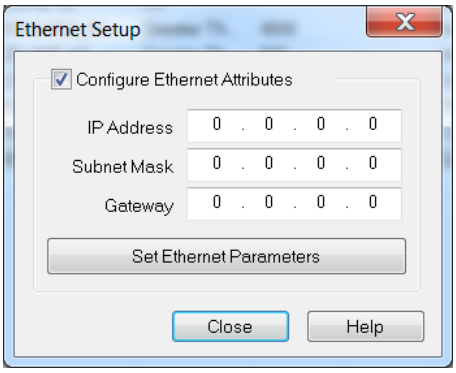
9) Click on the Inactive Text tab to program the inactive text message. Inactive text will be displayed when the Message Trigger condition is False. Inactive Text is programmed with the same options as Active Text. If you did not select the Use Inactive Text option under the Message Attributes tab, you will see the following dialog when you click on the Inactive Text.6



## SETTING ETHERNET IP ADDRESS AND UNIT NUMBER

### CONFIGURE ETHERNET PARAMETERS:

The Marquee's Ethernet parameters can generally be programmed through the PC using the Serial Programming Port or over the EZ-WiFi Module:




1. In the Marquee software's Main programming window, Click on menu ***Marquee >Ethernet Setup***

2. This will read the current Ethernet settings from the Marquee.

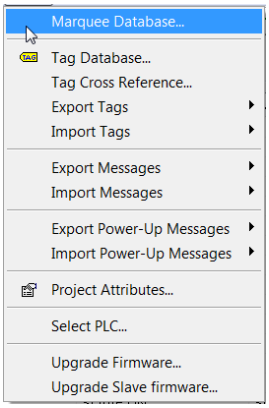
3. You can then configure the following Ethernet Parameters: IP Address, Subnet Mask, and Gateway Address and write them to the Marquee.

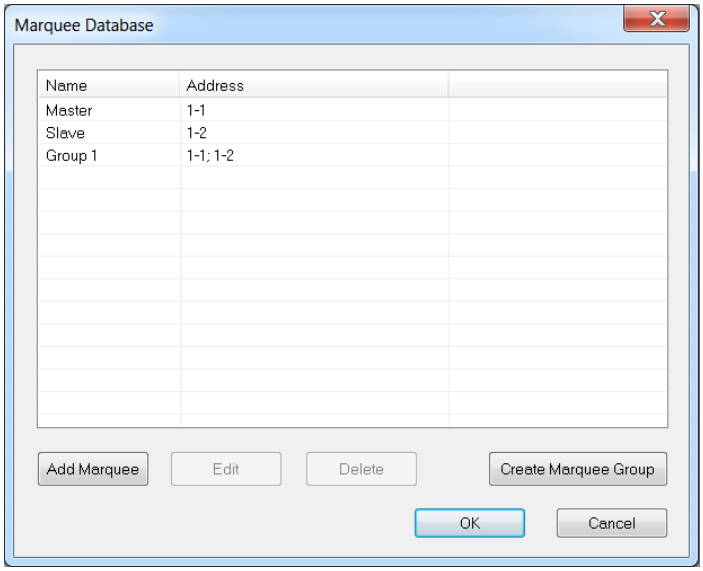
### GROUP AND UNIT NUMBER

Each EZ iMarquee is assigned a unit address. A unit address is programmed into each message to specify which unit or units should display that message. By default an iMarquee's Unit and Group Number is 1. You do not have to change this if using just one single unit per application.

Each unit address consists of two identifiers—a **Group** and **a Unit Number**. A group may contain up to 4095 slave units, connected serially to the Master marquee. The unit addresses allow the EZ iMarquee message controller to select and send messages to select slave Marquee units.

The slave Marquees can be assigned the Group numbers and the Unit number using the Marquee software. Click on menu ***Setup >Marquee Database.*** A dialog box pops up, where you can set up the iMarquee's unit and group number.





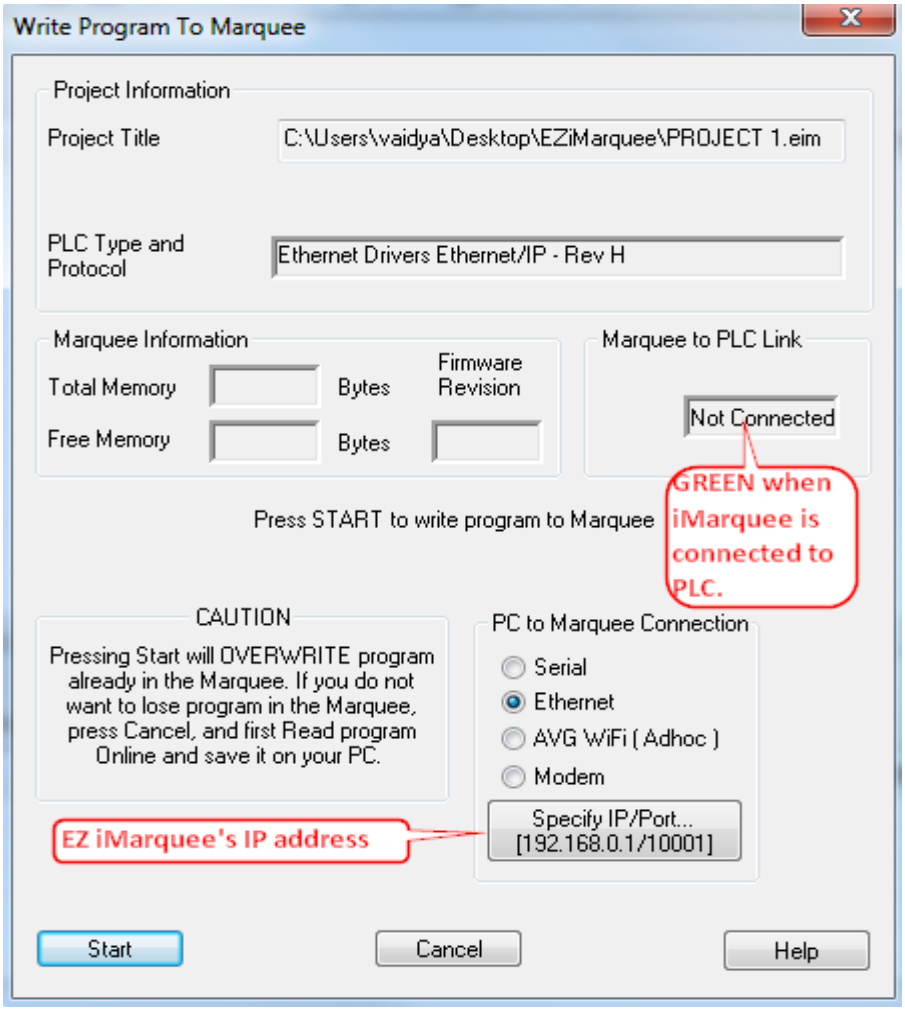
Phone: 1-877-774-EASY (3279) • Email: techsupport@ezautomation.net
4140 Utica Ridge Road • Bettendorf, IA 52722

## TRANSFERRING PROJECT TO iMARQUEE

In the Main programming window, Click on the menu, File ***>Transfer to Marquee.*** You will see the below window.

Please check or verify how you want to send / transfer the project to iMarquee by selecting either Serial or Ethernet under PC to Marquee connection.

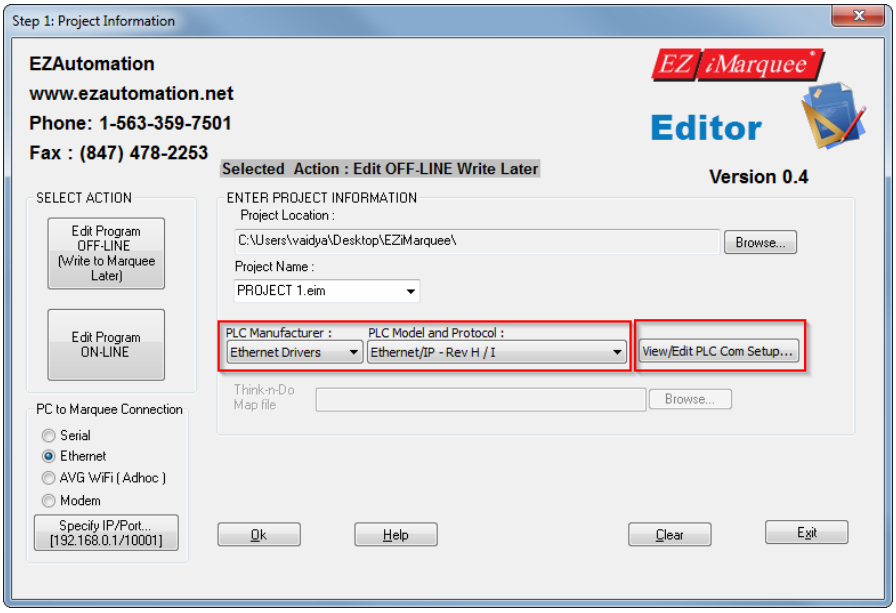
Click on “Start” button to transfer the project to iMarquee.

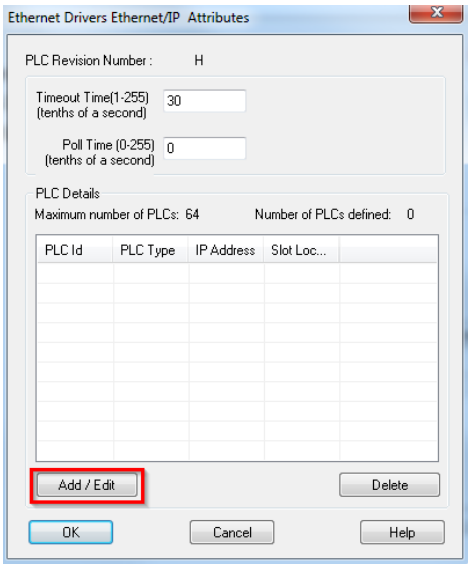


## ETHERNET COMMUNICATION SETUP WITH DIFFERENT PLC's

**Allen Bradley SLC / MICROLOGIX / CONTROLLOGIX / COMPACTLOGIX / MICRO 800**

When we first launch the EZ iMarquee programming software to create a project offline, you will see the below window. To configure your iMarquee to talk to any of the above mentioned PLC's, Select "Ethernet Drivers" under the PLC Manufacturer drop down list and select "Ethernet/IP" under PLC Model and Protocol. Click on "View Edit PLC Com Setup"



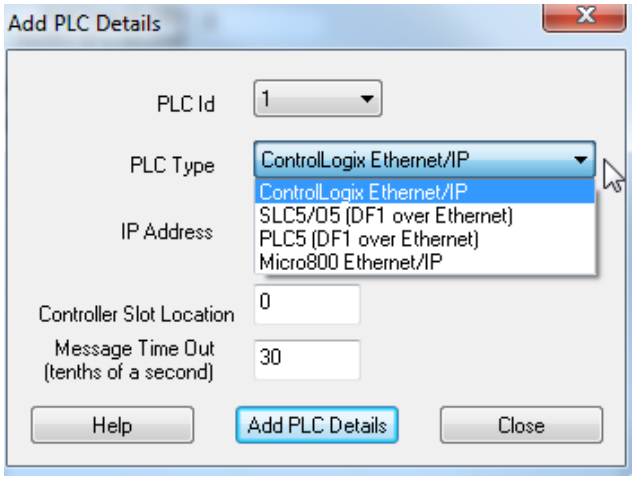

Click "Add/Edit" button. Select PLC type.

Enter IP Address of the PLC. If you do not know the IP address of the PLC, please enter some random numbers and you can edit it later.

DO NOT LEAVE THE IP ADDRESS FIELD BLANK.

Click on "Add PLC Details" and

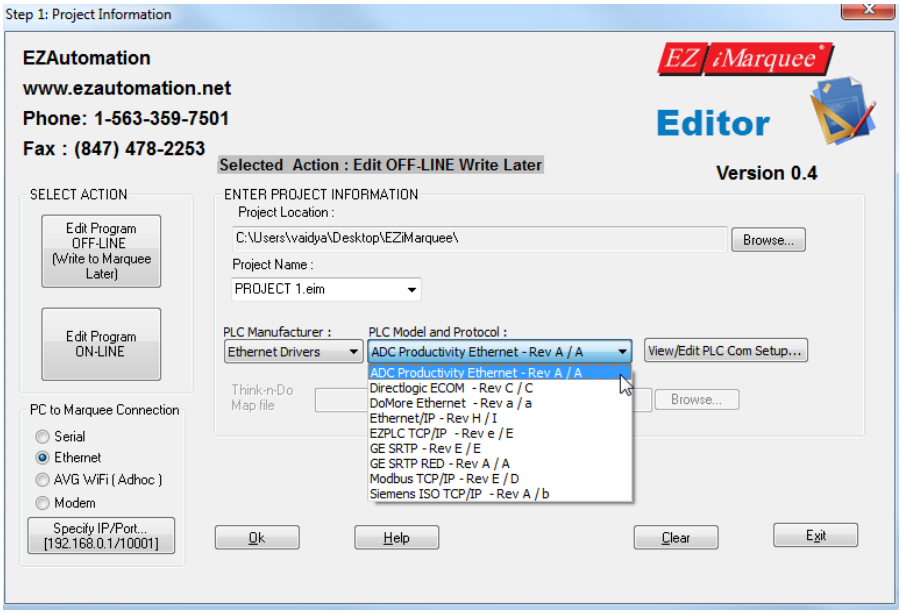
Click on "Close"

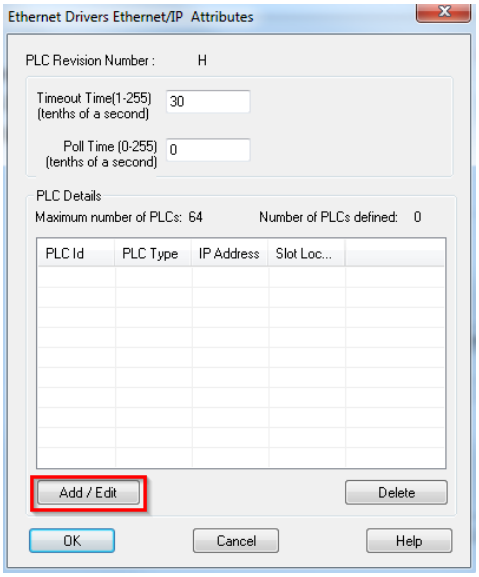



- Select "ControlLogix Ethernet/IP" under PLC Type for ControlLogix or CompactLogix PLC.
- Select SLC/05 (DF1 over Ethernet) under PLC Type for SLC or Micrologix PLC.

**AUTOMATION DIRECT PRODUCTIVITY / DIRECT LOGIC / DO-MORE PLCs**

When we first launch the EZ iMarquee programming software to create a project offline, you will see the below window. To configure your iMarquee to talk to any of the above mentioned PLC's, Select "Ethernet Drivers" under the PLC Manufacturer drop down list and under PLC Model and Protocol, select "ADC Productivity" or "Directlogic ECOM" or "DoMore Ethernet".



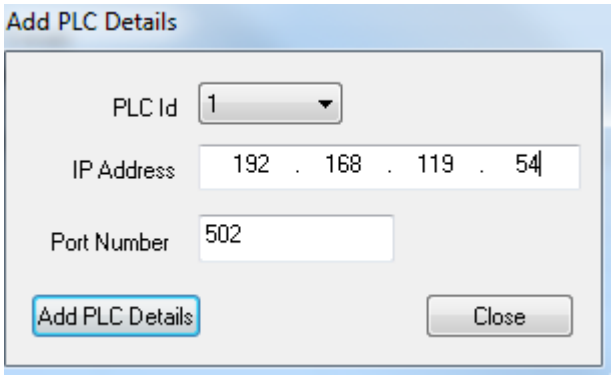

Click on "View Edit PLC Com Setup" and Click "Add/Edit" button.

Enter IP Address of the PLC. If you do not know the IP address of the PLC, please enter some random numbers and you can edit it later.

DO NOT LEAVE THE IP ADDRESS FIELD BLANK.

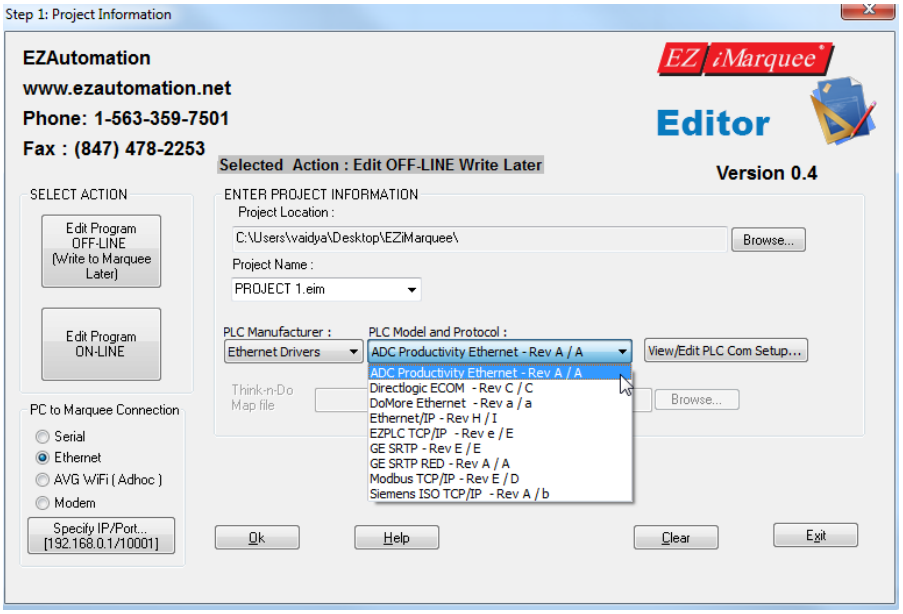
Click on "Add PLC Details" and

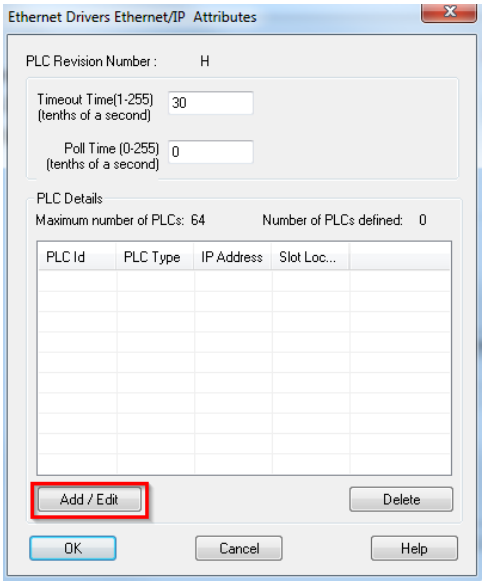
Click on "Close"



**MODICON / SCHNEIDER OR ANY CONTROLLER's WITH MODBUS TCP/IP PROTOCOL**

When we first launch the EZ iMarquee programming software to create a project offline, you will see the below window. To configure your iMarquee to talk to any of the above mentioned PLC's, Select "Ethernet Drivers" under the PLC Manufacturer drop down list and under PLC Model and Protocol, select "Modbus TCP/IP" and Click on "View Edit PLC Com Setup".



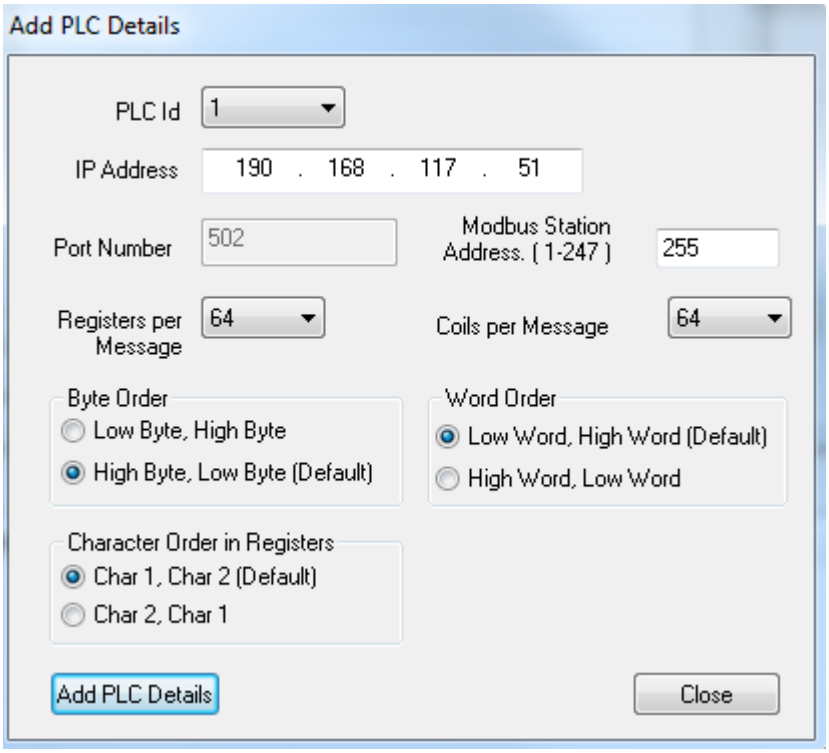

Click "Add/Edit" button.

Enter IP Address of the PLC. If you do not know the IP address of the PLC, please enter some random numbers and you can edit it later.

DO NOT LEAVE THE IP ADDRESS FIELD BLANK.

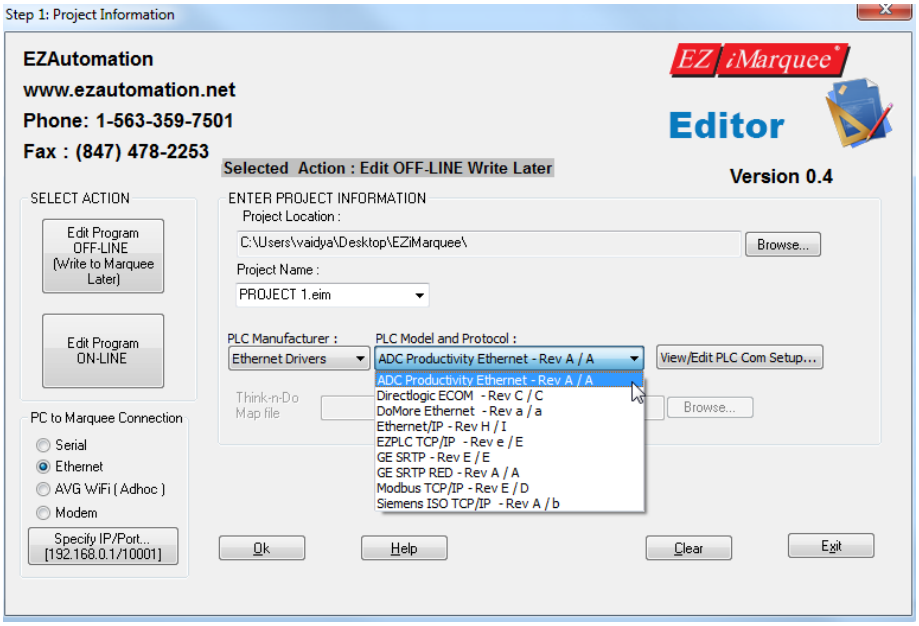
Click on "Add PLC Details" and

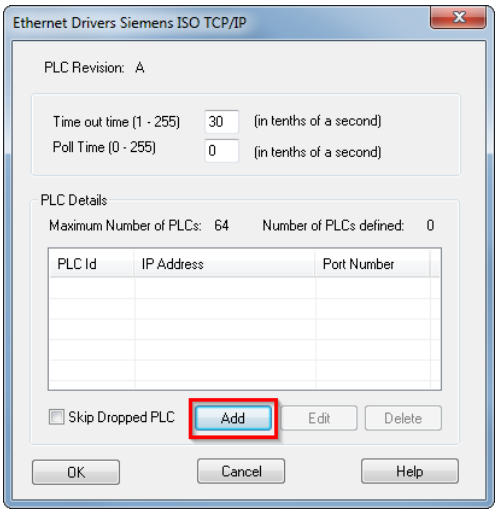
Click on "Close"



**SIEMENS S7 PLCs (ISO over TCP/IP)**

When we first launch the EZ iMarquee programming software to create a project offline, you will see the below window. To configure your iMarquee to talk to any of the above mentioned PLC's, Select "Ethernet Drivers" under the PLC Manufacturer drop down list and under PLC Model and Protocol, select "Siemens ISO TCP/IP". Click on "View Edit PLC Com Setup"



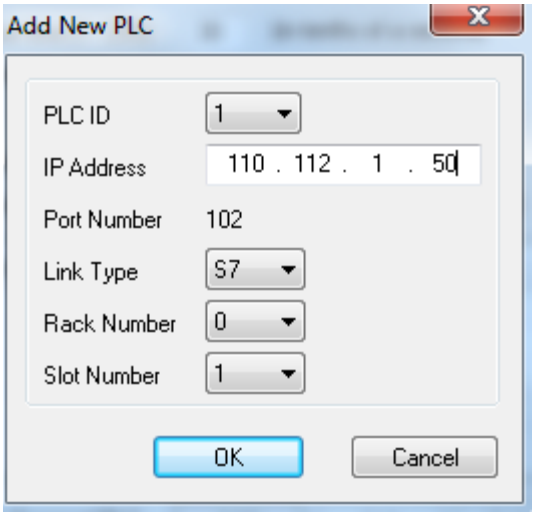




Click "Add" button.

Enter IP Address of the PLC. If you do not know the IP address of the PLC, please enter some random numbers and you can edit it later.

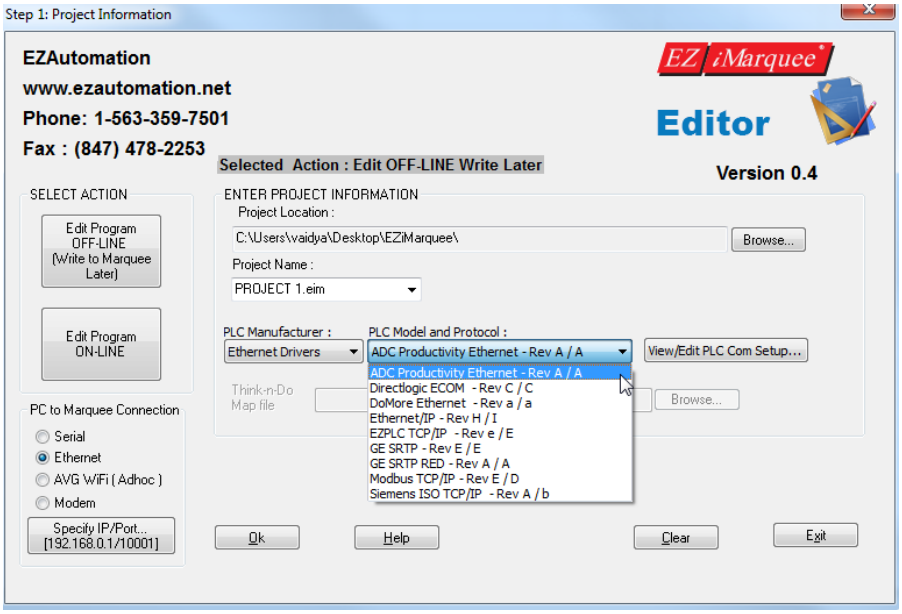
DO NOT LEAVE THE IP ADDRESS FIELD BLANK.

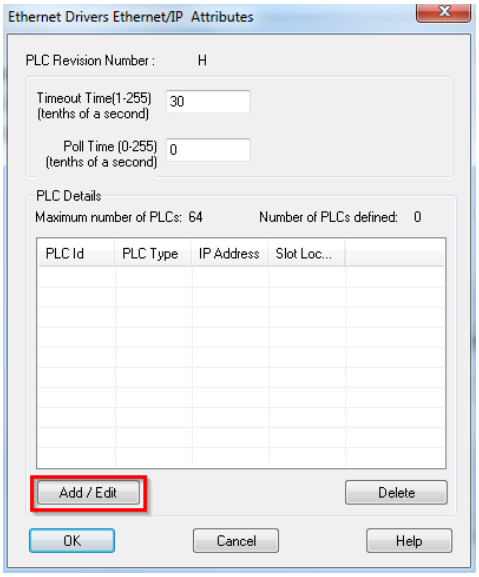
Click on "OK"



**GE PLC's (SRTP PROTOCOL)**

When we first launch the EZ iMarquee programming software to create a project offline, you will see the below window. To configure your iMarquee to talk to any of the above mentioned PLC's, Select "Ethernet Drivers" under the PLC Manufacturer drop down list and under PLC Model and Protocol, select "GE SRTP" and Click on "View Edit PLC Com Setup"



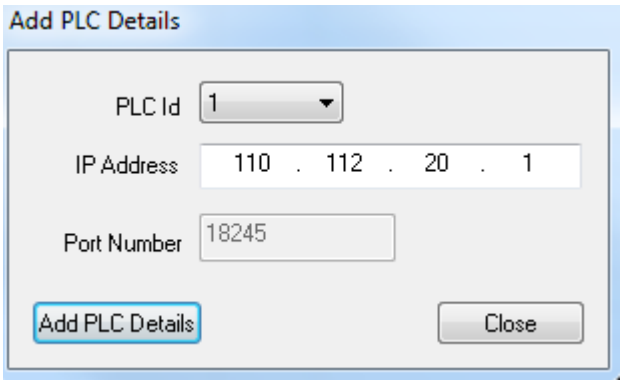

Click "Add/Edit" button.

Enter IP Address of the PLC. If you do not know the IP address of the PLC, please enter some random numbers and you can edit it later.

DO NOT LEAVE THE IP ADDRESS FIELD BLANK.

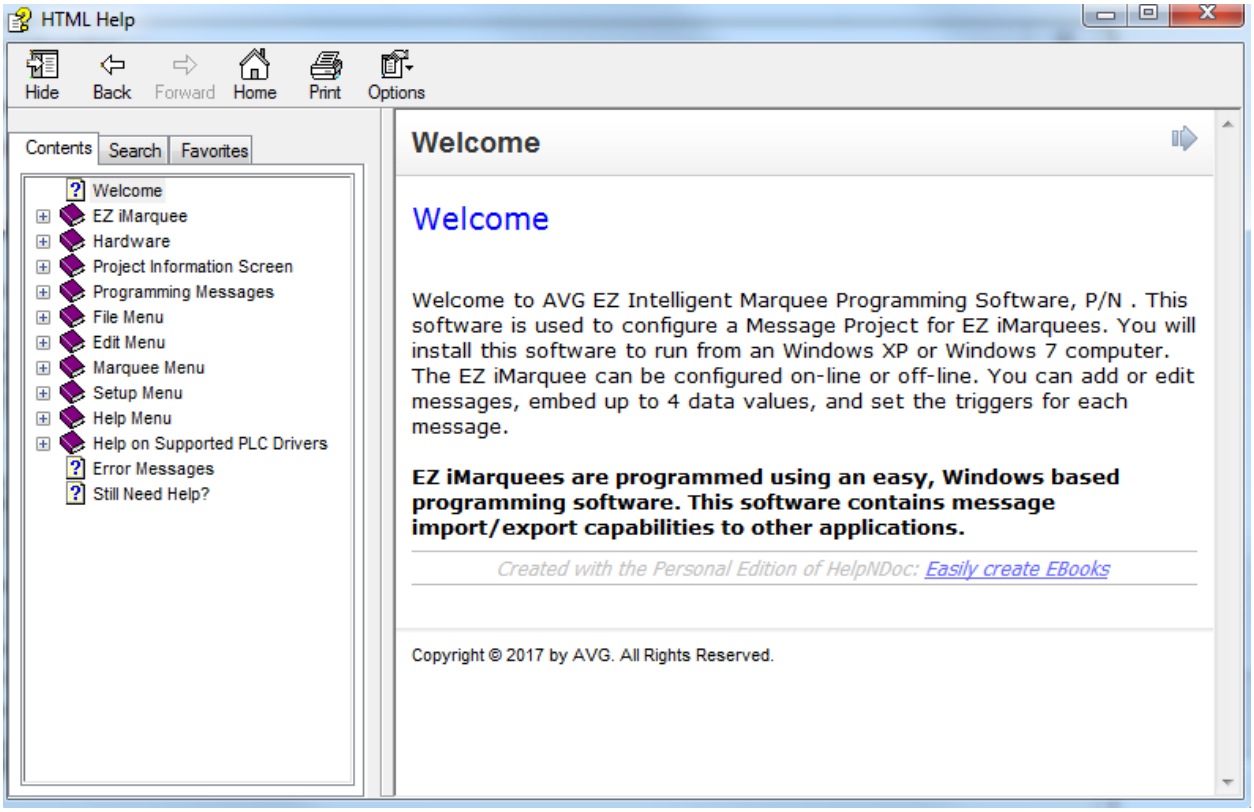
Click on "Add PLC Details" and

Click on "Close"



## HELP

There is a comprehensive help section built right in to the EZ iMarquee Software. Help section is accessible from any window in the programming software.
Help section also covers message formatting and syntax.




## SALES / CUSTOMER SERVICE / TECHNICAL SUPPORT

If you need any assistance or if you need to contact us:

North America Toll Free: 1-877-774-EASY (3279)
World Wide: 563-359-7501

Fax: 1-877-775-3279 / 563-359-9094

Email:
sales@ezautomation.net
techsupport@ezautomation.net