UTICOR

Tough Smart Marquee Message Controller
User Manual

(Manual Part Number MAN-TSM-MSGCT-001)

<u>WARNING!!</u>

Programmable control devices such as the Uticor's Marquee Message Controller are not fail-safe devices and as such must not be used for stand-alone protection in any application. Unless proper safeguards are used, unwanted start-ups could result in equipment damage or personal injury. The operator must be made aware of this hazard and appropriate precautions must be taken.

In addition, consideration must be given to the use of an emergency stop function that is independent of the Programmable Controller.

The diagrams and examples in this user manual are included for illustrative purposes only. The manufacturer cannot assume responsibility or liability for actual use based on the diagrams and examples.

Trademarks

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Manual part number MAN-TSM-MSGCT-OO1

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EU Information

The Uticor Marquee Message Controller is manufactured in compliance with European Union (EU) Directives and carries the CE mark. They been tested under CE Test Standard #EN55011, and is submitted for UL Certification.

Please Note: Products with CE marks perform their required functions safely and adhere to relevant standards as specified by EU directives provided they are used according to their intended purpose and that the instructions in this manual are adhered to. The protection provided by the equipment may be impaired if this equipment is not used in accordance with this manual. Only replacement parts supplied by AVG Automation or its agents should be used.

Programming Software Onscreen Help

If you are using Uticor Marquee Programming Software, context sensitive onscreen help is available. To access the Help windows, simply press the F1 function key while on the topic where you need help. For example, if you need help while working with screens, press the F1 function key while in that area and a popup window will be displayed. You may also click on the Help button located in most of the dialog boxes to go to the related help topic.

Technical Support

Although most questions can be answered with this manual, the ToughSmart Marquee Getting Started Guide or the Uticor Marquee Programming Software HELP topics, you may additionally find answers to your questions on our web site @ www.uticor.net. If you still need assistance, please call our technical support at 1-877-774-EASY or FAX us at 1-877-775-EASY.

SELV Circuits

All electrical circuits connected to the communications port receptacle are rated as Safety Extra Low Voltage (SELV).

Environmental Specifications

Operating temperature: 0 to +60 °C
Storage temperature: -40 to +60 °C
Operating Humidity: 10-95% R.H., non condensing
Air composition: No corrosive gases permitted

Preventative and Maintenance Cleaning

No special preventative measurement is required

Chapter 1. Introduction
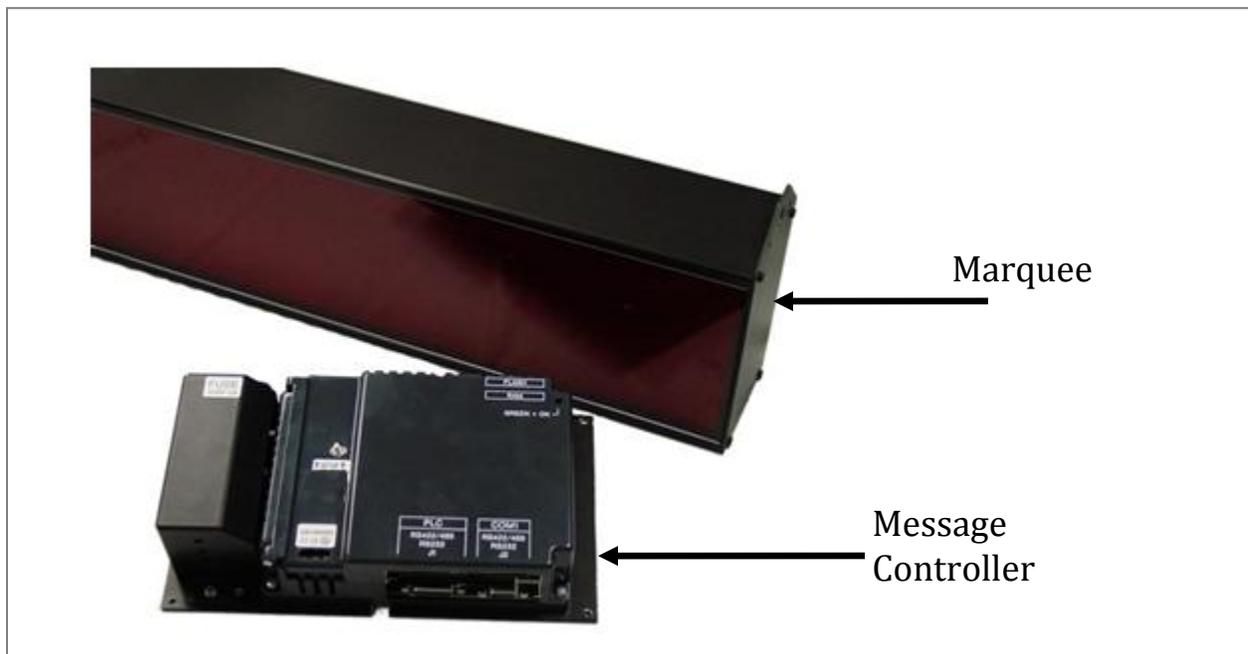
1.1   THE MESSAGE CONTROLLER

TSM Message Controller from Uticor is a unique product. It allows the user to program messages and the corresponding condition under which the messages should be displayed on a connected marquee. The message controller reads the values from connected PLC(s), evaluates programmed conditions, and sends to connected marquee(s) messages which satisfy conditions for display. This is all done without making any changes to PLC ladder logic.

The TSM Message controller supports a variety of PLC communication protocols allowing it to communicate with most of the popular PLCs available in the market. These include serial protocols like Modbus, DF1, DH485 EZ etc, and network protocols such as Ethernet/IP, Modbus TCP/IP and GE SRTP.

The Message controller can drive one or multiple marquees. A single marquee can be driven using a 9-pin RS232 port on the message controller. Multiple marquees can be connected on the Ethernet port, or on serial port using a 232 to 422 converter.

The Message Controller is housed in a compact, industrial grade plastic ventilated housing and is intended for indoor use only. It has a steel back plate with 4 mounting holes that can be used to mount the controller on the rear of the marquee or at a remote mounting panel location.

Chapter 2 provides product specifications for the Message Controller. Outline dimensions are located in Chapter 3. Wiring and connections are detailed in Chapter 4. Chapter 5 explains how to program the Message Controller. Chapter 6 explains how to install Option Boards on the Controller.
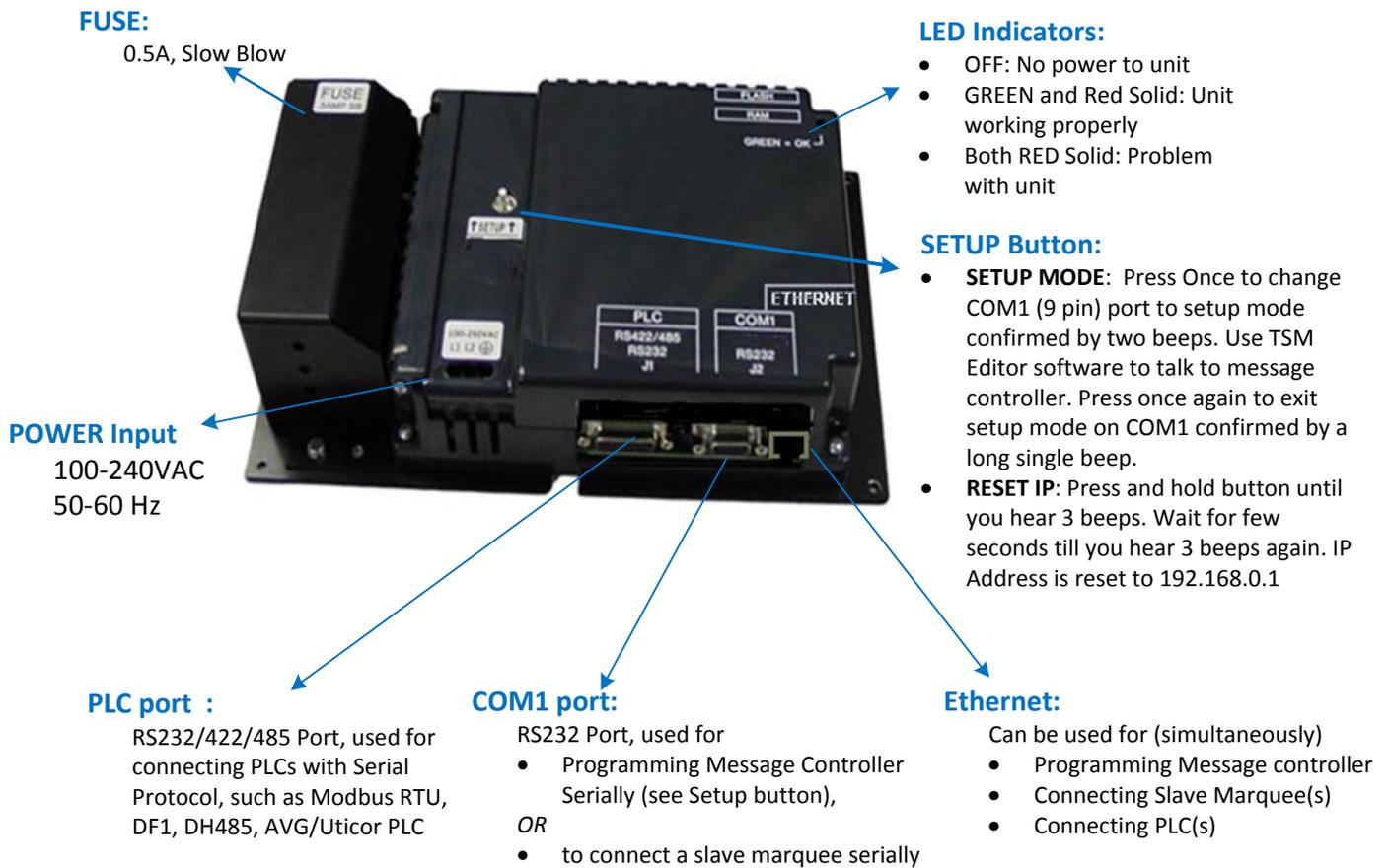

Marquee

Message Controller

1.2   OVERVIEW

TSM Message Controller has following features:

- User programmable Message controller is used with Uticor Slave marquees
- The user programs the messages and the corresponding conditions under which messages should be displayed on connected slave marquees
- Messages can be sent to a single marquee, a group of marquees or broadcast
- Power up messages (only displayed once) and event triggered messages
- Connectivity to most of the popular PLC brands, using serial or Ethernet protocols

TSM Message Controller

FUSE:
0.5A, Slow Blow

POWER Input
100-240VAC
50-60 Hz

LED Indicators:
- OFF: No power to unit
- GREEN and Red Solid: Unit working properly
- Both RED Solid: Problem with unit

SETUP Button:
- **SETUP MODE**: Press Once to change COM1 (9 pin) port to setup mode confirmed by two beeps. Use TSM Editor software to talk to message controller. Press once again to exit setup mode on COM1 confirmed by a long single beep.
- **RESET IP**: Press and hold button until you hear 3 beeps. Wait for few seconds till you hear 3 beeps again. IP Address is reset to 192.168.0.1

PLC port :
RS232/422/485 Port, used for connecting PLCs with Serial Protocol, such as Modbus RTU, DF1, DH485, AVG/Uticor PLC

COM1 port:
RS232 Port, used for
- Programming Message Controller Serially (see Setup button),
OR
- to connect a slave marquee serially

Ethernet:
Can be used for (simultaneously)
- Programming Message controller
- Connecting Slave Marquee(s)
- Connecting PLC(s)

1.3   QUICK START YOUR UTICOR MARQUEE

In this section, we present the steps needed to setup the Message Controller and the Marquee and get started. This is not intended to explain specific details needed to start-up your system. Rather, it provides a quick guide to give a broad picture of what is needed to power-up your Uticor Marquee system.

Step 1:   Check all System Components

It is always recommended to ensure that you have all the right parts to build your system. This is what you will need to get started:

- Uticor Message Controller
- At least one Uticor Slave Marquee (which supports PMD mode)*
- 2.5mm blade Screwdriver for wiring
- 110-250 VAC input Power cord with stripped wires on one end
- Programming cable: RS-232C cable P/N: UT-CPG1*, or Ethernet Cable (customer supplied)
- Cable to Connect Slave Marquee to Message controller:
    - RS-232C cable with standard 9-pin connector on one (Message Controller) end and the other end un-terminated (3 stripped wires to connect to the Slave Marquee terminal strip). P/N: UT-CBL2 OR
    - Ethernet cable if slave marquee is equipped with an Ethernet port
- PLC Communication cable (See Section 4.2), as required *
- Programming Software: Uticor ToughSmartMarquee 1.0 (or higher)*

    These items have to be purchased separately

Step 2:   Connect the Message Controller to the PC

The Message Controller can be connected to the Programming Computer serially (using a Programming Cable: UT-CPG1) or via Ethernet. Refer to Section 4.1.2.

Step 2:   Connect the Message Controller to the Slave Marquee

If the PC is not connected to it, the 9-pin COM1 port on the Message controller may be used to connect serially to a Slave Marquee via RS-232 cable (P/N: UT-CBL2)
You may use an *RS-232 to RS 485 Converter* to connect multiple slave Marquees serially.
The slave Marquees can also communicate to the Message controller over Ethernet.
Refer to Section 4.1.3 for more details.

Remember: Only one device i.e. the PC or the Marquee may be connected to the 9-pin COM1 port at a time.

Step 3: Connect the Message Controller to the PLC

You may serially connect the PLC Port on the Message Controller to the PLC's COM Port using their appropriate cables. Refer to Section 4.2 for PLC Serial Interface Cable part numbers and Section 4.1.4 for wiring info.

The Message Controller may also be connected to the PLC via Ethernet, as long as the PLC supports Ethernet drivers.

Step 4:   Apply Power

Connect the power input wires into the Message Controller's power terminals. Supply 100-250 VAC Power to the system, and ensure that the LED indicator at the back turns green. If not, remove power from the system and check all wiring. Refer to Section 4.1.1 for more information.

Step 5:   Create and Transfer Program to the Controller

Install the Uticor Message Controller Programming Software (P/N: UT-SMPS) on your PC and create a Marquee Program. Use programming software Help for information on programming. See Chapter 5 for details.

Transfer Project to the Message Controller via Ethernet. You may also transfer project serially by switching the Marquee Controller to Setup Mode , if required.

Chapter 2. Message Controller Specifications

|	
SERVICE POWER:	100 - 240VAC, 50-60 Hz
ENCLOSURE:	Ventilated enclosure (for indoor use only)
OPERATING TEMPERATURE	0 to +50°C (32 to 122 °F)
STORAGE TEMPERATURE	-40 to +60 °C (13 to +140 °F)
VIBRATION RESISTANCE	5 to 55 Hz, 2g for 2 Hours in X, Y, and Z Axes
SHOCK RESISTANCE	10g for under 12 ms in X, Y, and Z Axes
HUMIDITY	10-95% Non-Condensing
EXTERNAL DIMENSIONS	10.500" (W) x 5.971" (H) x 2.652" (D) (266.700mm x 151.663mm x 67.361mm)
ELECTRICAL NOISE	NEMA ICS 2-230 Showering Arc, ANSI C37.90a SWC, Level C Chattering Test
WEIGHT	2.5 lb (1.0 kg)
MOUNTING	Back panel mount using screws
REAL-TIME CLOCK	Not available (Use External PLC clock, if accessible)

COMMUNICATION PORTS & CONNECTORS

COM1 Port (9-pin D-Sub Female):
Used to program the message controller or to drive a slave marquee

PLC Port (15-pin D-Sub Female):
- Serial Communication to the PLC

RJ-45 Ethernet connector:
- Ethernet communication to the PLC and the slave Marquees
- Connect via Ethernet to the Programming PC
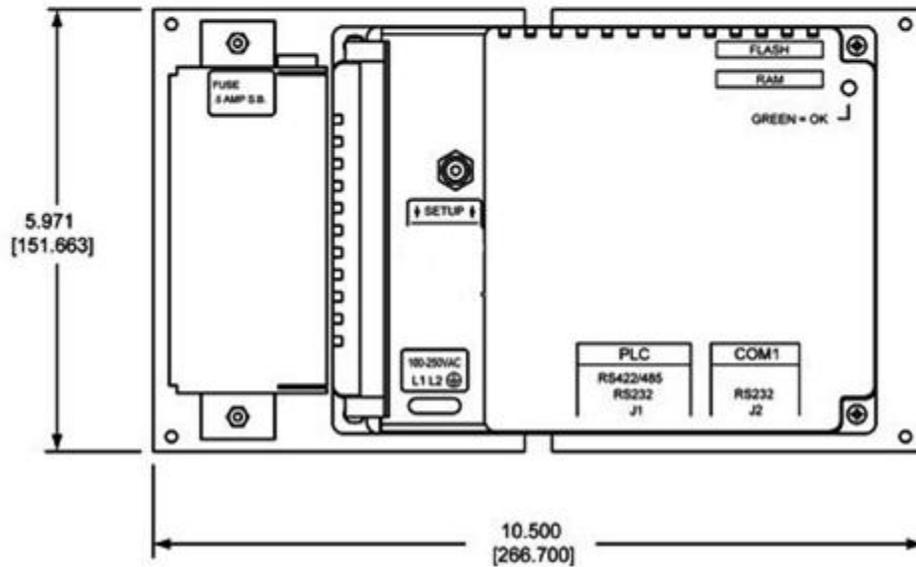
Chapter 3. Mounting and Dimensions

Outline Dimensions

Units: inches [mm]
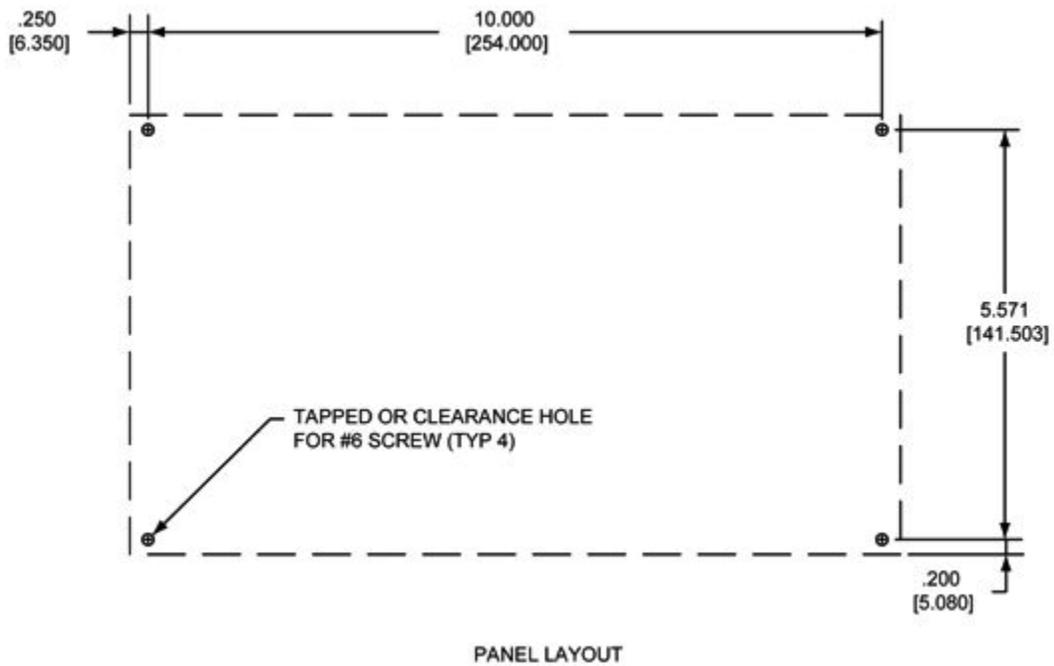
Side View
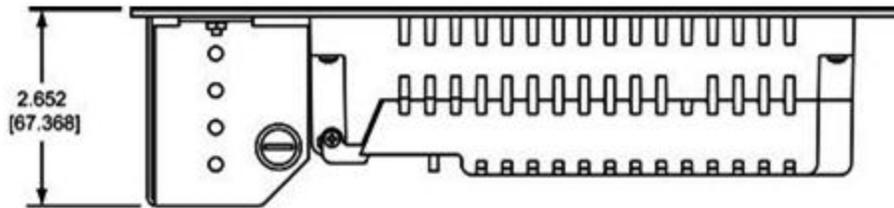
Back View

Mounting Dimensions

Units: inches [mm]

Notes:

- Mount the Message Controller horizontally, and allow at least 2 inches space all around for proper ventilation.
- Use #6 screws for mounting the unit.

.250
[6.350]

10.000
[254.000]

5.571
[141.503]

TAPPED OR CLEARANCE HOLE
FOR #6 SCREW (TYP 4)

.200
[5.080]

PANEL LAYOUT

Chapter 4. Wiring and Connections

## 4.1 COMMUNICATION PORTS AND WIRING

4.1.1 WIRING THE POWER TERMINAL

The Message Controller requires a 100-250VAC power source. Connect Line1 (HOT) to L1 on unit. Connect Line 2 (Neutral) to L2 on unit. GND (on the unit) is connected to the chassis ground of the cabinet. It is recommended that you use a power source that is isolated from relays, valves, etc.

Controller Power Terminal		
Pin #	Pin Function	
1	L1	100-250 VAC
2	L2	
3	Chassis Ground	

4.1.2 WIRING THE MESSAGE CONTROLLER TO THE PROGRAMMING COMPUTER

The Message Controller can be connected to the Programming Computer serially (using a Programming Cable: UT-CPG1) or via Ethernet (Cat5 cable).
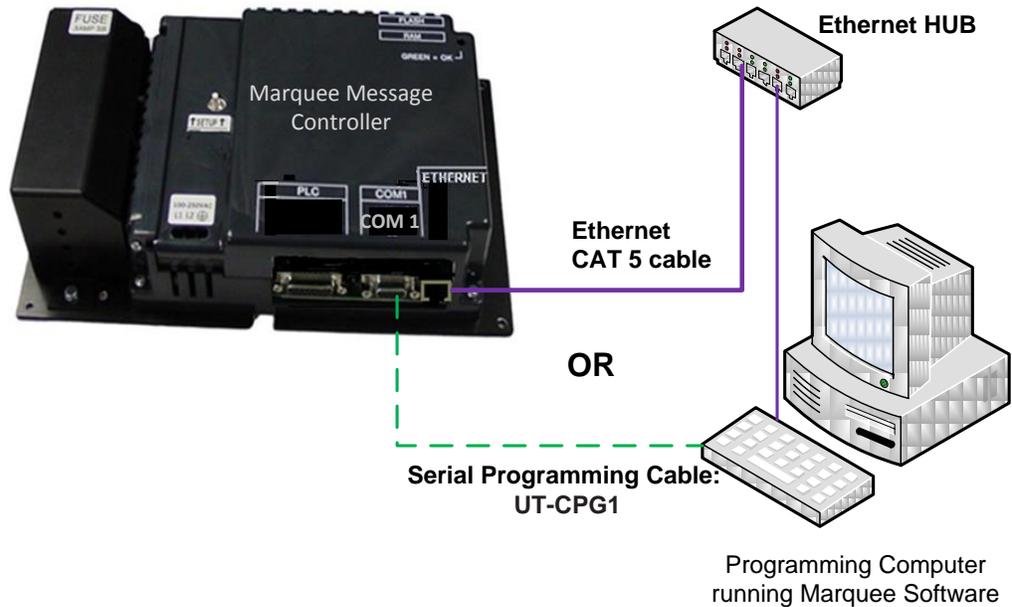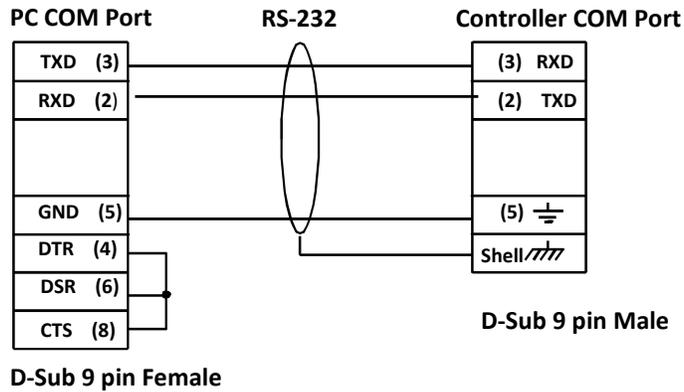
For Serial Communication

The COM1 Port on the Message Controller is used to connect a programming computer or a slave Marquee to the Message controller via RS-232 protocol only. The Controller only needs to be connected to a PC when you are programming the unit. You will use the Uticor Tough Smart Marquee Programming Software (P/N: UT-SMPS) to create a message program for the Marquee Controller. You can then transfer the program to the controller by entering the Setup Mode. A wiring diagram for the Message Controller Programming Cable (P/N: UT-CPG1) is shown below.

RS-232 Programming Cable (P/N: UT-CPG1)

CAUTION! *Keep the signal reference GND wire well protected from external noise by using a shielded cable.*

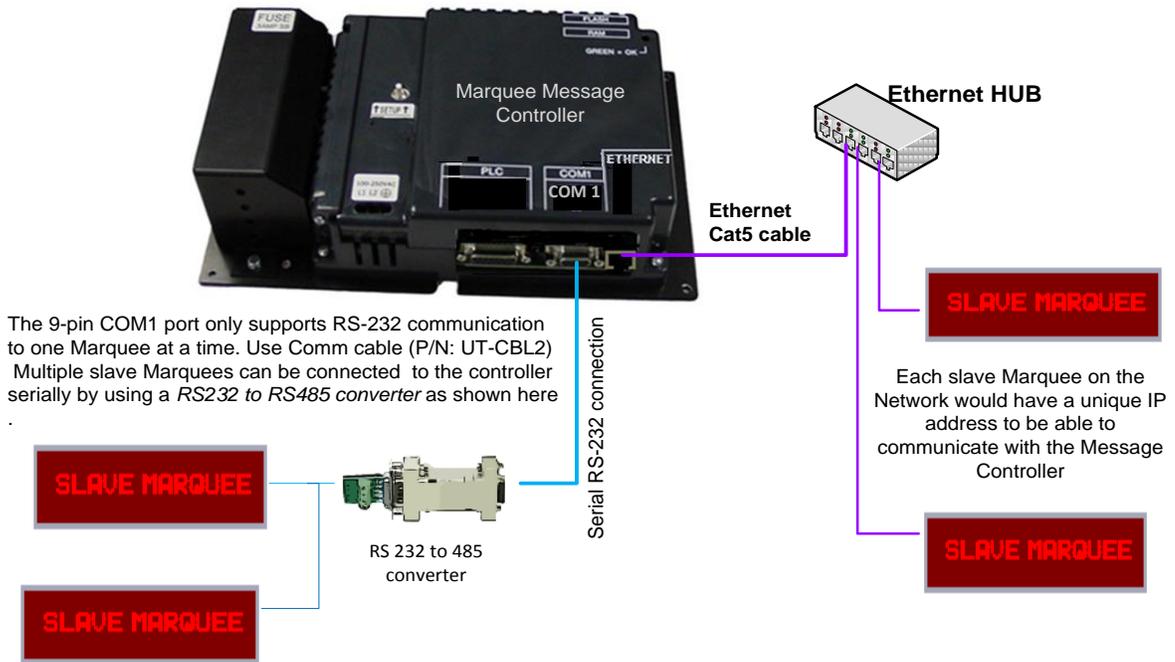| PC COM Port	RS-232	Controller COM Port
TXD (3)		(3) RXD
RXD (2)		(2) TXD
GND (5)		(5)
DTR (4)		Shell
DSR (6)		
CTS (8)		D-Sub 9 pin Male

D-Sub 9 pin Female

For Ethernet Communication

The Message Controller has an RJ-45 port for Ethernet communication. You may connect this port to the Programming computer using a commercially available Cat5 cable. Then you may proceed to communicate to the Controller (from the PC) by entering its IP address.

4.1.3   WIRING THE MESSAGE CONTROLLER TO THE MARQUEE

The Message Controller can be connected to a single Slave Marquee serially (using a Marquee Communication Cable: UT-CBL2) or multiple Marquees (using a RS-232 to 485 converter). You can also communicate via Ethernet (Cat5 cable).

The 9-pin COM1 port only supports RS-232 communication to one Marquee at a time. Use Comm cable (P/N: UT-CBL2) Multiple slave Marquees can be connected to the controller serially by using a *RS232 to RS485 converter* as shown here .

RS 232 to 485 converter

Serial RS-232 connection

Ethernet HUB

Ethernet Cat5 cable

Each slave Marquee on the Network would have a unique IP address to be able to communicate with the Message Controller

For Serial Communication

The COM1 Port on the Message controller is also used to connect to the serial port of any Uticor Slave Marquee that supports PMD mode. Use an RS-232 cable with standard 9-pin connector on one (Message Controller) end and the other end un-terminated (3 stripped wires (P/N: UT-CBL2) to connect the Marquee Port to the Communication Screw Terminals on the Slave Marquee. Since this port does not support RS-485 connection, you may connect the Message controller to multiple Slave Marquees using a *RS232 to RS485 Converter.*
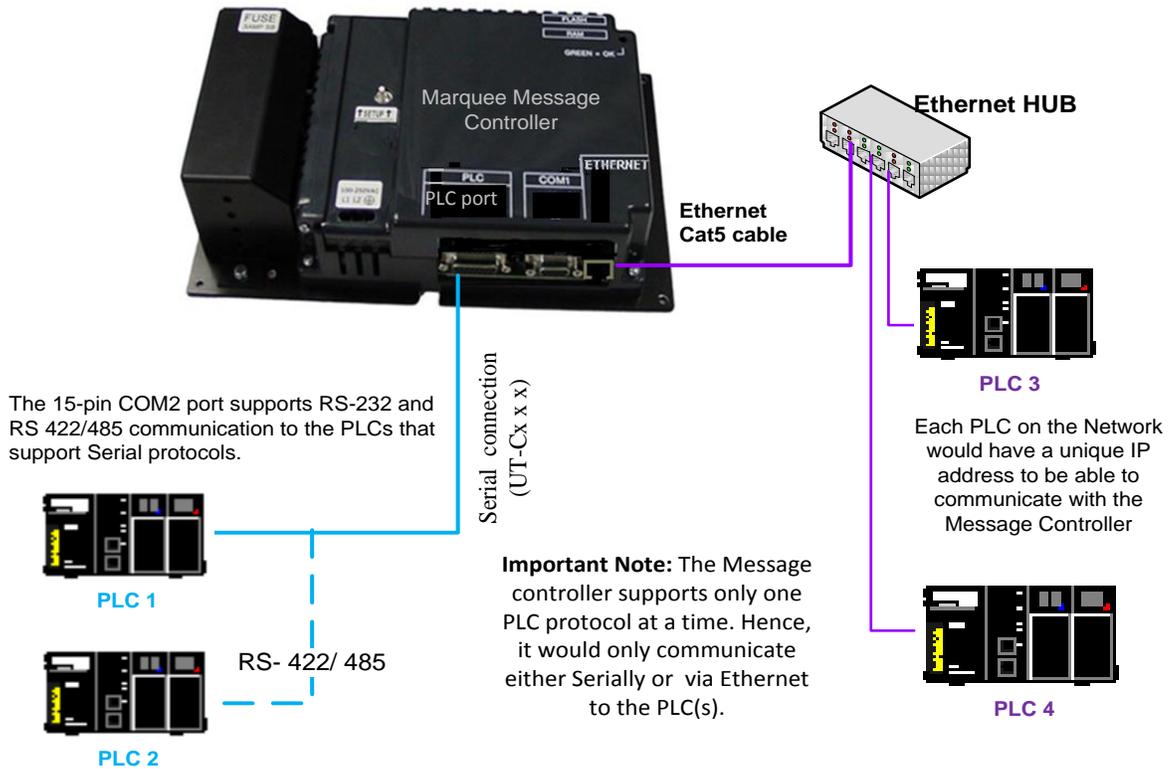
COM1 Port connector	
Pin #	**Pin Function**
2	(TXD) RS-232C
3	(RXD) RS-232C
5	Logic Ground

For Ethernet Communication

The Message Controller has an RJ-45 port for Ethernet communication. You may connect this port to the RJ-45 port on the Slave Marquee using a commercially available Cat5 cable.

Each slave Marquee on the Network should have a unique IP address to be able to communicate with the Message Controller.

4.1.4   WIRING THE MESSAGE CONTROLLER TO THE PLC

You can serially connect the PLC Port on the Message Controller to the PLC's COM Port using appropriate communication cables. Refer to Section 4.2 for PLC Serial Interface Cable part numbers.

The Message Controller may also be connected to the PLC via Ethernet, as long as the PLC supports Ethernet drivers.

Marquee Message Controller

PLC port

Ethernet HUB

Ethernet Cat5 cable

The 15-pin COM2 port supports RS-232 and RS 422/485 communication to the PLCs that support Serial protocols.

Serial connection (UT-Cx x x)

PLC 1

PLC 2

RS- 422/ 485

PLC 3

Each PLC on the Network would have a unique IP address to be able to communicate with the Message Controller

Important Note: The Message controller supports only one PLC protocol at a time. Hence, it would only communicate either Serially or via Ethernet to the PLC(s).

PLC 4

For Serial Communication

Important Note: The Message controller supports only one PLC protocol at a time. Hence, it would only communicate either serially OR via Ethernet to the PLC(s) at any given time.

The Uticor Message Controller has a built-in PLC Com Port. A special Option Board may be installed for certain PLC protocols. These option boards include: Allen-Bradley Data Highway Plus, Generic DeviceNet IO and Generic Profibus-DP. All the boards are installed at the factory. For information on these boards, see Chapter 6. The Serial PLC COM Port is a 15-Pin Female D-Sub Connector. This port supports RS-232, RS-422/485 communication.

The table on the following page shows the pinout for the connector.

PLC Port Connector

Pin	Signal	Description
1	Chassis GND	Chassis Ground
2	TXD	RS-232 Serial Data Output
3	RXD	RS-232 Serial Data Input
4	+5V	+5V Through 120 Ohm Resistor
5	Signal GND	Signal Ground
6	LE	
7	CTS	RS-232 Clear To Send
8	RTS	RS-232 Request To Send
9	RXD+	RS-422/485 Serial Data Input +
10	RXD-	RS-422/485 Serial Data Input -
11	SD+	RS-422/485 Serial Data Output +
12	SD-	RS-422/485 Serial Data Output -
13	TERM	RS-422/485 120 Ohm Termination Resistor Connect to Pin 9
14	N.C.	
15	N.C.	

For Ethernet Communication

The RJ-45 port on the Message Controller can be used for Ethernet communication to the PLCs that support Ethernet drivers. You may connect this port to the RJ-45 port on the PLC using a commercially available Cat5 cable.
Each PLC on the Network would have a unique IP address to be able to communicate with the Message Controller

4.2   PLC SERIAL INTERFACE CABLES

The Table below provides the Communication Cable part number that is specific to each PLC.

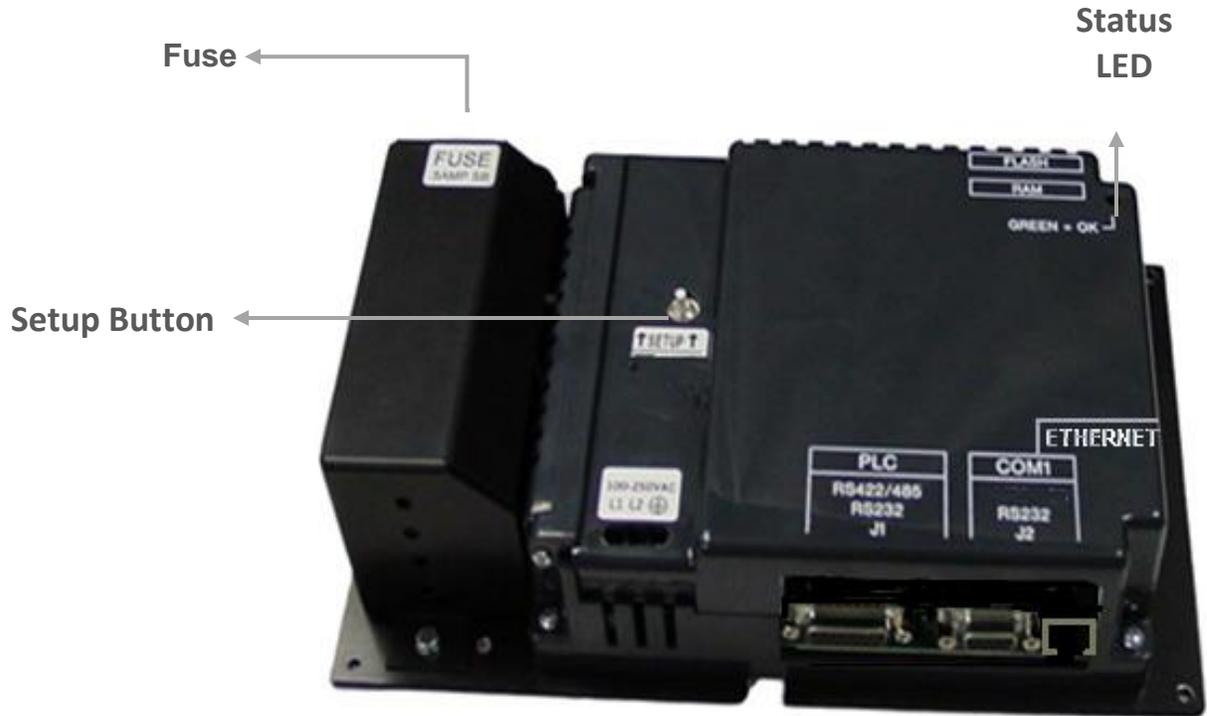| Cable Description	Cable Part Number
Uticor PLC (via RS-232)	UT-CBL
ADC Direct Logic 15 pin D-shell male to RJ12	UT-CRS2
ADC Direct Logic 15pin D-Shell male to 15pin D-Shell male	UT-CRS1
GE 90/30 and 90/70 (SNPX protocol)	UT-CGE
AB SLC 5/03/04/05 DF1 port (RS-232C)	UT-CAS1
AB PLC5 DF1 port (RS-232C)	UT-CAP5
AB SLC DH485 port (RS-485A)	UT-CAS4
AB MicroLogix 1000, 1200 & 1500 (RS-232C)	UT-CAM1
Mitsubishi FX Series 15 pin to 25-pin Male port (RS-422A)	UT-CM1
Mitsubishi FX Series 8-pin MINI-DIN (RS-422A)	UT-CM2
Omron C200, C500 (RS-232C)	UT-CO1
Modicon ModBus with RJ45	UT-CM2
Modicon ModBus RTU	UT-CM1
Siemens S7 200 PLC	UT-CS2

Table 4.2 PLC Communication Cables

4.3   REPLACEMENT AND OPTIONAL ACCESSORIES

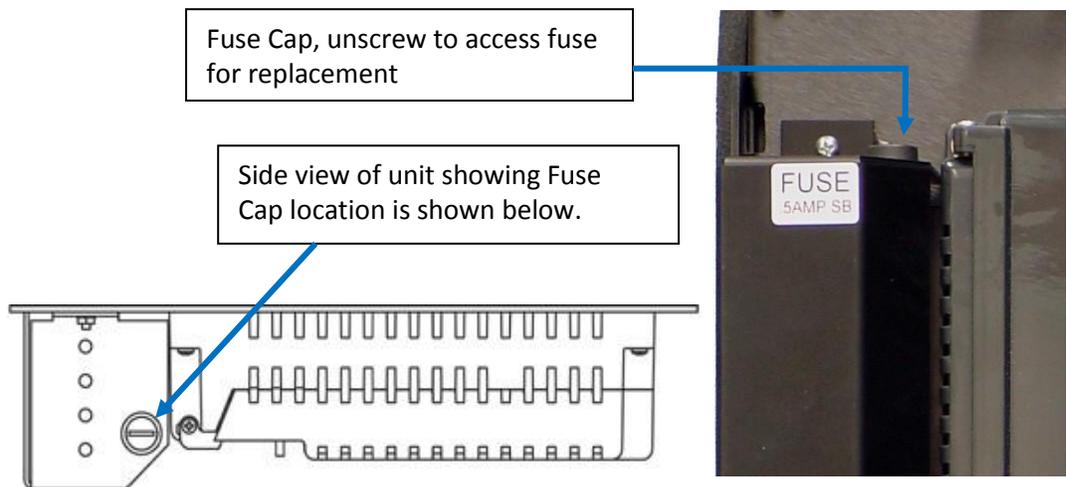| Accessory	Part Number
Tough Smart Marquee Programming Software	UT-SMPS
RS-232C Programming Cable	UT-CPG1
Replacement ½ AA, 3.6 V Lithium Battery	UT-B
RS-232 Marquee Communication Cable	UT-CBL2

4.4   THE MESSAGE CONTROLLER INTERFACE

The Message Controller Interface and its various components are described in this section:

Fuse

This unit uses a 0.5 AMP Slow Blow at 250 VAC, size 2 AG.

Fuse Cap, unscrew to access fuse for replacement

Side view of unit showing Fuse Cap location is shown below.

Setup Button

Located on the rear of the Marquee Message Controller is the Setup pushbutton. The Message controller is usually programmed via Ethernet. But, if for some reason you are unable to do so, then you may press the Setup button when connected to a programming computer to enter Setup Mode and use the Uticor Marquee Programming Software to configure Marquee messages serially. This button allows you to change IP address, download a new user program, or upgrade Marquee application (firmware) over the serial port.

- **SETUP MODE**
  To communicate serially with the Message Controller using the Programming software running on a PC, follow these steps:

  1. Press the Setup Button located on the Marquee Controller Board to enter "**Setup Mode**". The Message Controller would beep twice to acknowledge that it's in the Setup Mode.
     If a Marquee is connected serially to the Message Controller and/or a Group of Marquees are specified using the Programming software (Setup>Project Attributes> Status Messages), then those Marquees would display the following message:

  2. Once in this Mode, you should be able to communicate to the Marquee from the PC through the programming software. You can check /modify IP parameters, download a new user program, or upgrade the Marquee firmware serially.

  3. Push Setup Button again to exit the Setup Mode. The Controller would now send a single long beep to acknowledge that it is exiting the Setup mode. (Please **DO NOT turn off the power** for at least 2 minutes to allow the marquee to save any changes made to its nonvolatile memory). The Marquee should then start its normal operation and get into run mode. Disconnect the PC to Message Controller serial connection.

  Note: If there are no messages stored in the Message Controller, then the Marquees would continue to show the "In Setup Mode" message even after exiting the Setup Mode.

- **RESET THE IP ADDRESS**
  If for some reason, you want to reset the IP address of the Message Controller to its default settings, press and hold the Setup Button (located on the Marquee Controller Board), for 5 seconds till you hear 3 quick beeps…There is an approx. 5 second pause, after which you should hear 3 beeps again. This would imply that the marquee has been set to its default IP address (192.168.0.1)
  To assign new Ethernet parameters, enter Setup Mode again and assign the new IP address serially. You would be prompted to exit the Mode once the parameters have been set.

The Status LEDs

The Status LEDs provides an indication of unit status. They will illuminate as RED or GREEN.

If the LEDs do not light up, this indicates that there is NO POWER to unit or the power supply failed. Check the power source and the fuse. If ok, send unit back to factory for repair.

If the LEDs turn RED and stay RED, it indicates a unit failure. If this happens, return the panel to the factory for service.

If one LED turns RED and the other turns GREEN, it indicates normal operation.

Lithium Battery

How to Replace the Battery:

CAUTION	BEFORE REMOVING BATTERY, back up the user program and save it using the Uticor Marquee software. *Typical battery life is 5 years.*

a. Connect Message Controller to a computer and **save the user program** to disk.

b. Disconnect the power source.

c. Open back cover (shown open in figure below) to access the battery.

d. The battery is located in the upper-left hand corner as shown in the figure below. Remove old battery and replace with a new 1/2 AA, 3.6 V Lithium Battery (Part Number: UT-B).

e. Close rear cover and ensure that the door latches.

f. Reconnect power source, connect to PC, run Marquee Programming Software, and follow instructions in Ch.5 to transfer the user program that was previously saved to disk.
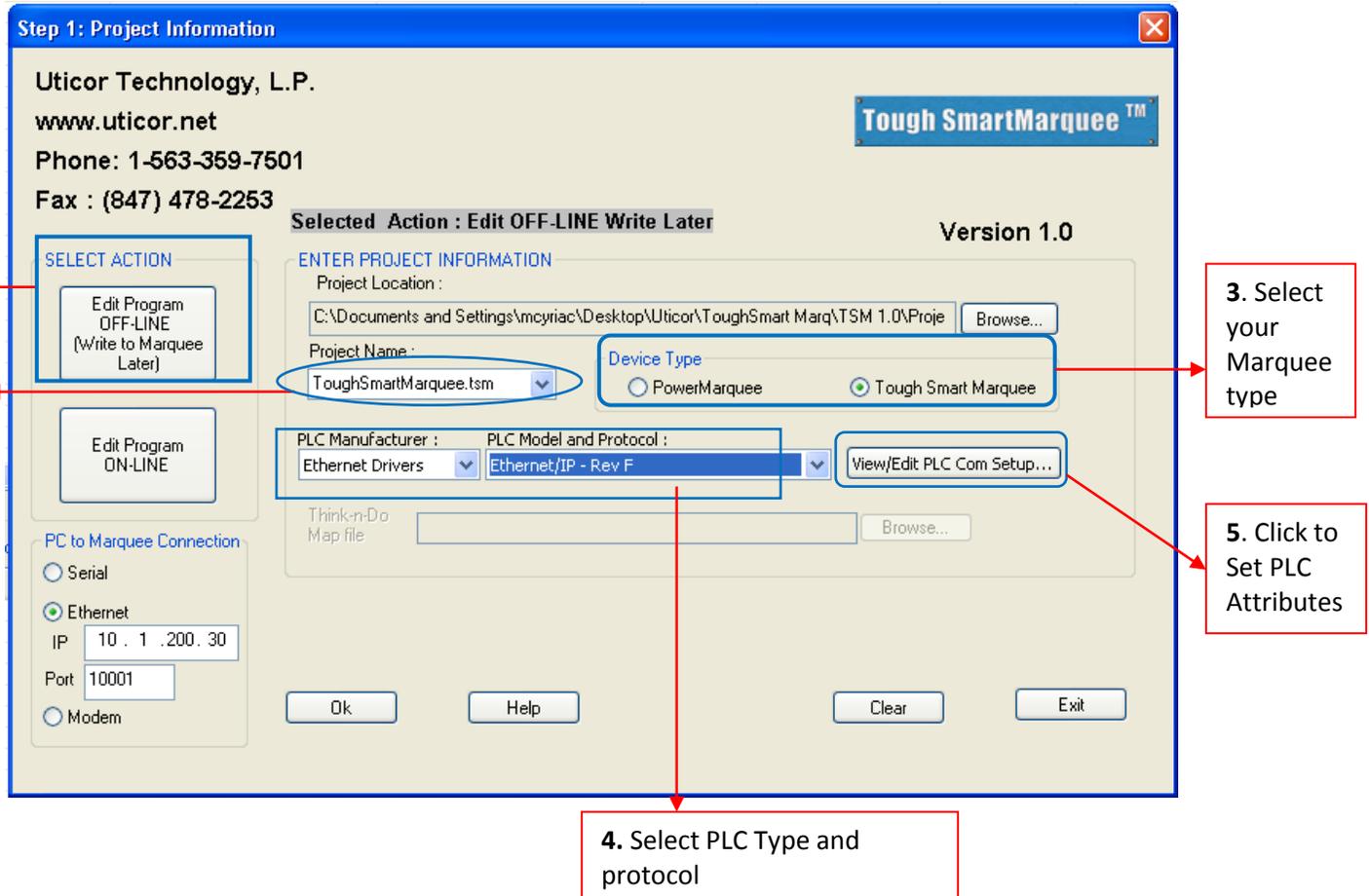

Battery
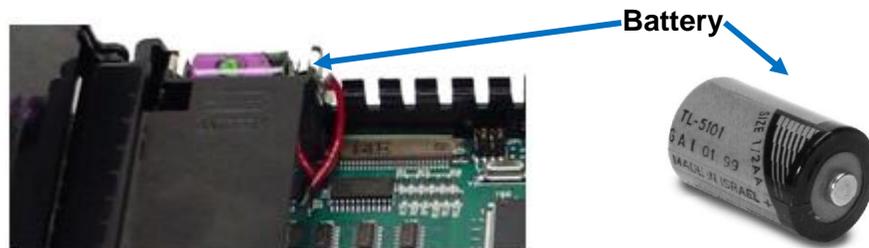
Chapter 5. Programming the Message Controller

The following example demonstrates how to create a project a Message Controller communicating to an AB PLC via Ethernet IP protocol.

5.1   ENTER PROJECT INFORMATION

Open the Uticor ToughSmartMarquee programming software. The following dialog box appears:

1. Click to create a new Project

2. Enter Project name

3. Select your Marquee type

5. Click to Set PLC Attributes

4. Select PLC Type and protocol

Entering Project information:

1. On the Project Information screen, click on the **Edit Program OFF-LINE (Write to Marquee Later)** button.

2. Under **Project Name**, enter the name of the project. The file has a ".tsm" suffix.

3. Select your Marquee Type- Power Marquee or Tough Smart Marquee

4. Click on the DOWN arrow to the right of **PLC Type and Protocol** to view the list. In this example, select EZ PLC (Ethernet TCP/IP) – Connecting to an EZ PLC via Ethernet TCP/IP protocol.

5. Click on the **View/Edit PLC Com Setup** to edit the PLC attributes. The PLC Attributes dialog box applicable to the type of PLC selected in Step 4 above, will appear. Here you can make changes to the PLC communication setup.

6. If communicating over Ethernet, "**Add PLC Details**" along with its Ethernet IP, gateway, Subnet masks etc. Click on OK to save the changes or 'Help' to view the help topics available for that particular PLC.

7. Now that you have entered the project information, click **OK** to save the project. You may click on **Clear** to clear the Project details and start over. **Exit** can be used to quit without saving the Project.

5.2   ADDING PLC MESSAGES TO THE MARQUEE

The Uticor Marquee software allows you to program different Marquee Messages, based on the tag values in the PLC. You can program Active or Inactive Messages based on whether the PLC tag condition is fulfilled on not. Refer to the "Add Messages" index in the Marquee software Help section for a detailed explanation on setting up Marquee Messages. Power Up Messages can only be sent to a particular Marquee if it is grouped and assigned in the Marquee Database.

## 5.3   SETTING UP IP ADDRESS AND CREATING A MARQUEE DATABASE

1. **CONFIGURE ETHERNET PARAMETERS:**
The Message Controller's Ethernet parameters can generally be programmed through the PC using the Controller's Ethernet port. But, under certain cases, serial port COM1 may also be used to configure the same:

a. **Via Ethernet connection between the Message Controller and the PC**
In the Marquee software's Main programming window, Click on menu *Marquee >Ethernet Setup Read the current Ethernet settings from the Message Controller.*

You can also configure the following Ethernet Parameters: IP Address, Subnet Mask, and Gateway Address and write them to the Controller.
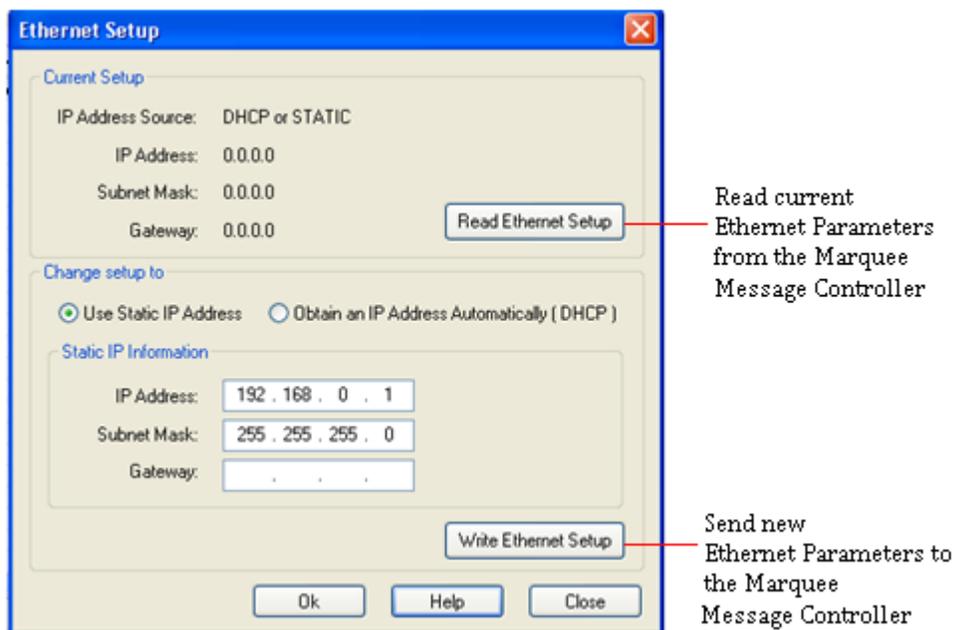
b. <u>**Via Serial connection between the Message Controller and the PC:**</u>

If, for some reason, you are unable to communicate over Ethernet, you can try communicating to the Message Controller over the Serial port (COM1) instead and then change the Ethernet IP parameters using the Programming Software.

To do so, connect serially to the Message Controller and enter the SETUP Mode. Using the Marquee software, change the PC to Marquee connection to "Serial".

Next, bring up the Ethernet Setup Dialog box and assign new IP settings to the Message Controller. Once that occurs, you would be prompted to exit the Setup Mode.

Resetting the IP address to its default value.

If for some reason, you want to reset the IP address of the Message Controller to its default settings, press and hold the Setup Button (located on the Marquee Controller Board), for 5 seconds till you hear 3 quick beeps…There is an approx. 5 second pause, after which you should hear 3 beeps again. This would imply that the marquee has been set to its default IP address (192.168.0.1)

You may then proceed to assign new IP parameters either via Ethernet or by entering SETUP Mode again and assigning the new IP address serially. You would be prompted to exit the Mode once the parameters have been set.
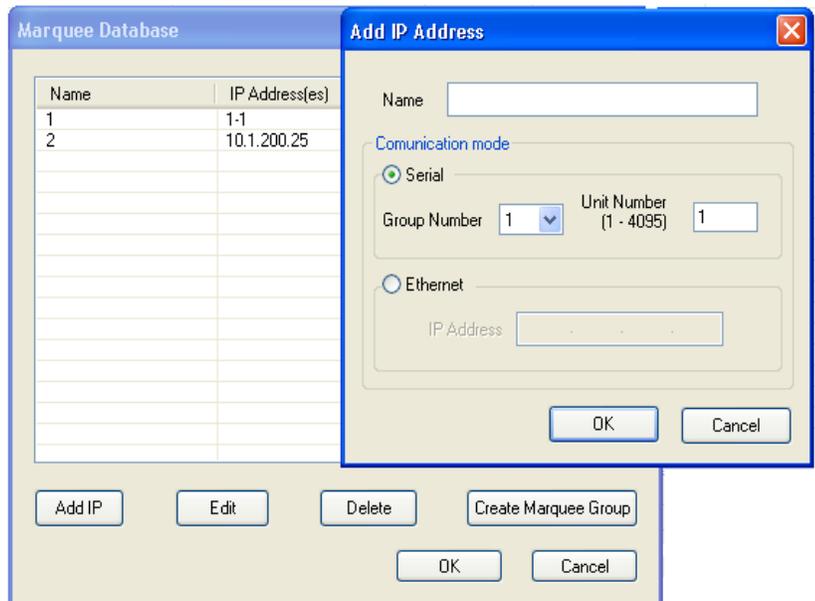
2. CREATING A MARQUEE DATABASE

Each Slave Marquee is assigned a unit address using the Dip switches located at the back of the marquee unit. A unit address is programmed into each message to specify which unit or units should display that message. The IP address for the slave Marquees is initially assigned using separate Slave Marquee Programming software.

Each unit address consists of two identifiers—a **Group** and **a Unit Number**. A group may contain up to 4095 slave units, connected serially or via Ethernet to the Message Controller. The unit addresses allow the ToughSmart Master Marquee or Message controller to select and send messages to select slave Marquee units.
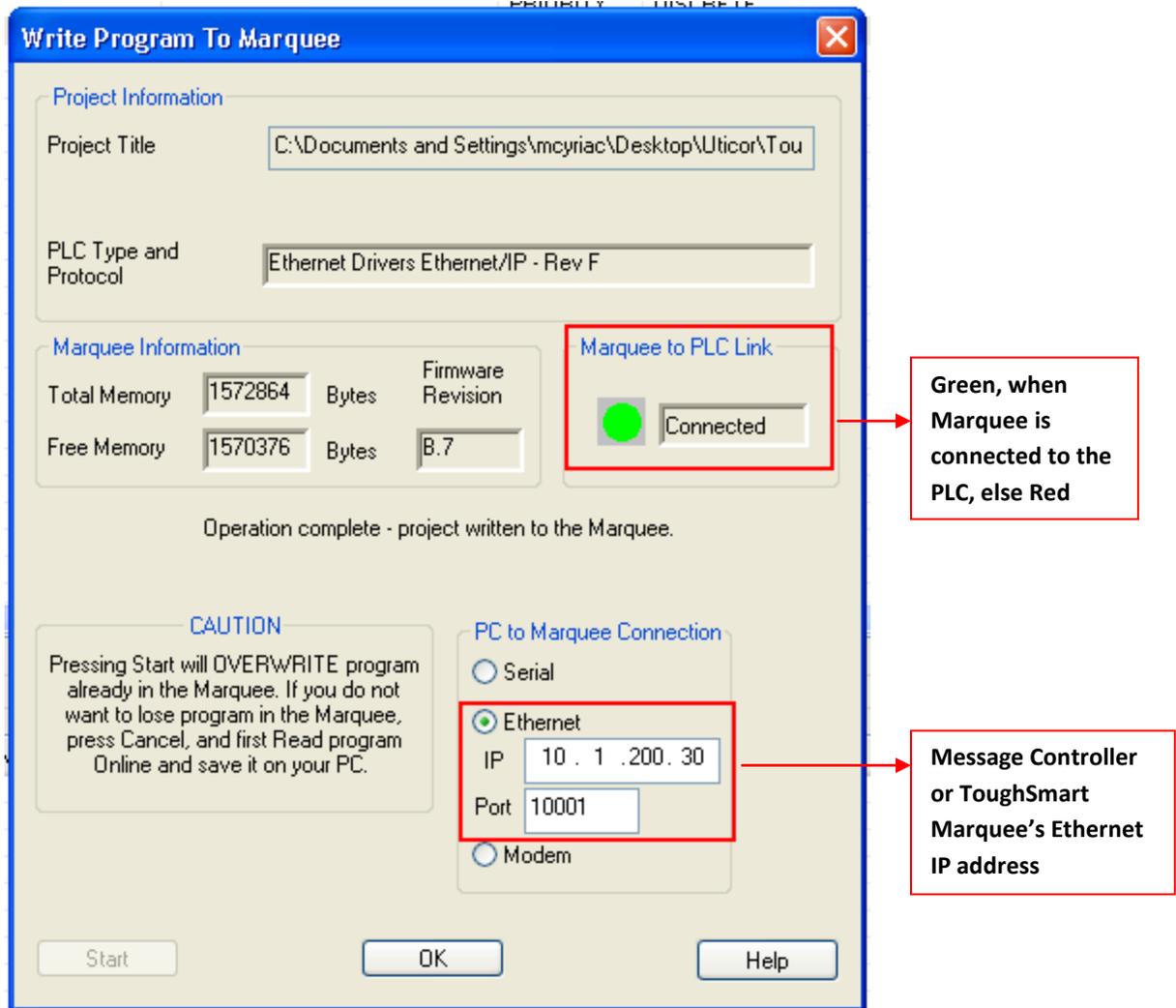
The slave Marquees with certain group and unit numbers can be grouped together using the Uticor TSM Marquee software.

Click on menu ***Setup ->Marquee database. A dialog box pops up. Enter the IP addresses/unit numbers for the slave marquees and create Marquee Groups that would contain multiple slave units.***

Please Note: In the Add Marquee dialog box, Communication mode implies the connection between the Message controller and the slave Marquee.

5.4 TRANSFERRING PROJECT TO THE MARQUEE MESSAGE CONTROLLER

Write Program To Marquee

Project Information

Project Title: C:\Documents and Settings\mcyriac\Desktop\Uticor\Tou

PLC Type and Protocol: Ethernet Drivers Ethernet/IP - Rev F

Marquee Information

Total Memory: 1572864 Bytes
Free Memory: 1570376 Bytes

Firmware Revision: B.7

Marquee to PLC Link: ● Connected

Green, when Marquee is connected to the PLC, else Red

Operation complete - project written to the Marquee.

CAUTION
Pressing Start will OVERWRITE program already in the Marquee. If you do not want to lose program in the Marquee, press Cancel, and first Read program Online and save it on your PC.

PC to Marquee Connection
○ Serial
⦿ Ethernet
  IP: 10 . 1 . 200 . 30
  Port: 10001
○ Modem

Message Controller or ToughSmart Marquee's Ethernet IP address

Start OK Help

1. In the Main programming window, Click on menu **File ->Transfer to Marquee** to send the Messages to the Marquee Message Controller.

2. A dialog box appears as shown above

3. Enter the Marquee Message Controller's IP address and press 'Start'.

Chapter 6.   Option Boards

Option Card Installation Instructions

The option cards available for the Message Controller are Allen-Bradley Data Highway Plus, Generic DeviceNet I/O and Profibus-DP. If specified when placing an order, your Marquee Message Controller would be shipped with the appropriate option card pre-installed. A connector, unique to each card, is attached to these option boards and is accessible from the bottom of the Marquee Message Controller.

The option card is installed into the backplane connector (shown below) of the Marquee Message Controller unit. (The connector on the bottom right side of the card installs into the backplane connector.) The card is secured with two screws.

Option Card is installed into the
Backplane connector as shown here

62-PIN SOCKET MOUNT
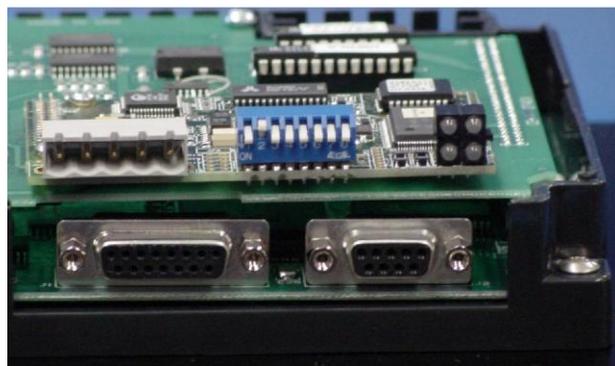BEHIND THE OPTION CARD
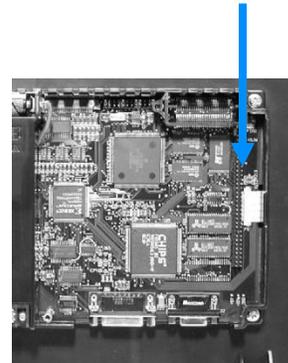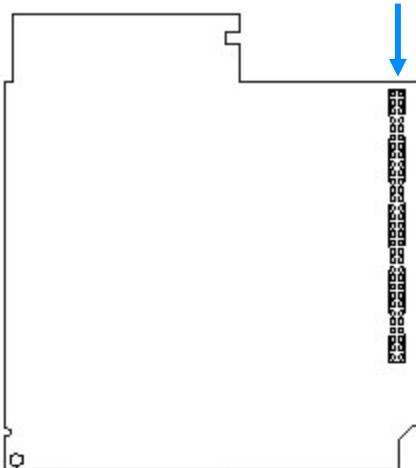
6.1.1 GENERIC DEVICENET I/O

The DeviceNet I/O Option Card has a special connector that is accessible from the bottom of the unit.

The DeviceNet connector extends over the edge of the board. Next to the connector are DIP Switches and then four LEDs that illuminate to indicate status. The Watchdog LED is only visible when you open the access door.

Devicenet Connector

Dip Switches

Status LEDs

Watchdog LED
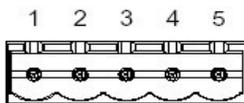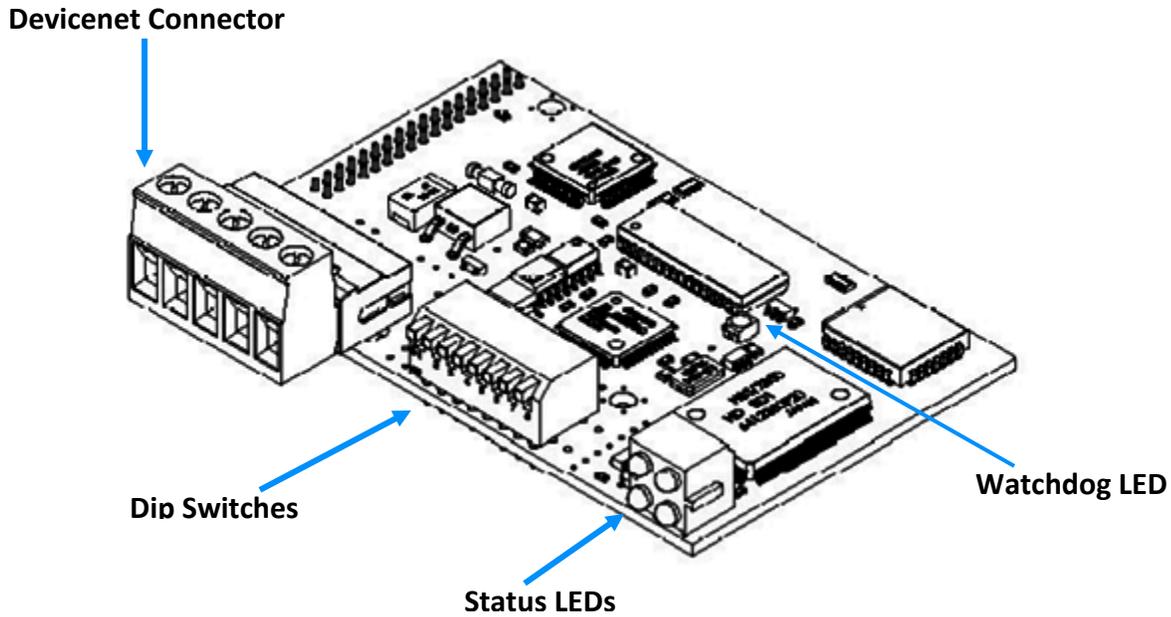
| Connector Pin	Signal	Description
1	V-	Negative supply voltage
2	CAN_L	CAN_L bus line
3	SHIELD	Cable shield
4	CAN_H	CAN_H bus line
5	V+	Positive supply voltage

6.1.2 GENERIC PROFIBUS-DP

The Profibus-DP Option Card has a special connector that is accessible from the bottom of the unit.

The Profibus-DP connector extends over the edge of the board. Next to the connector are a Termination Switch, Rotary Address Switches, and four LEDs that illuminate to indicate status.

Profibus-DP Interface

Termination Switch

Address Switches

Indicator Lights
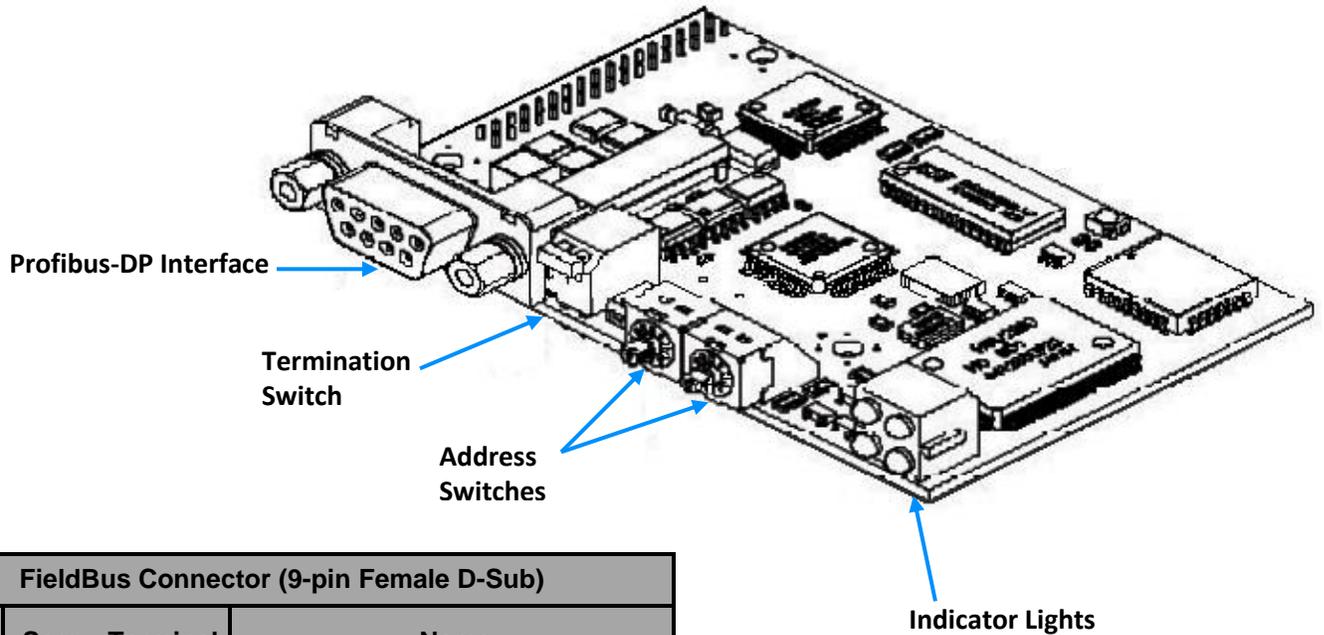
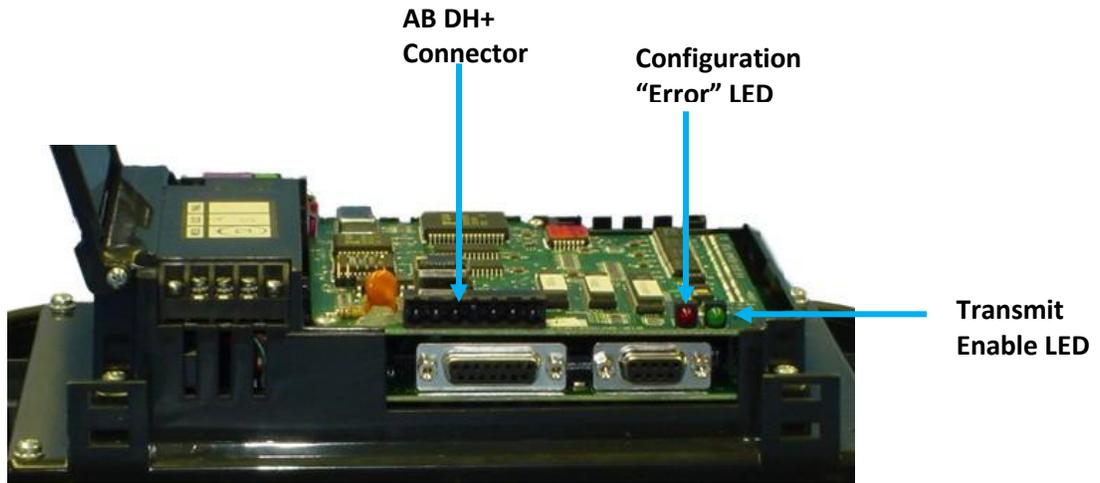| FieldBus Connector (9-pin Female D-Sub)		
D-SUB	**Screw Terminal**	**Name**
Housing	Shield	Connected to PE
1	Not connected	-
2	Not connected	-
3	B-Line	Positive RxD/TxD according to RS-485 specification
4	RTS	Request to Send*
5	GND BUS	Isolated GND from RS-485 side*
6	+5 V BUS	Isolated +5 V from RS-485 side
7	Not connected	-
8	A-Line	Negative RxD/TxD according to RS-485 specification
9	Not connected	-
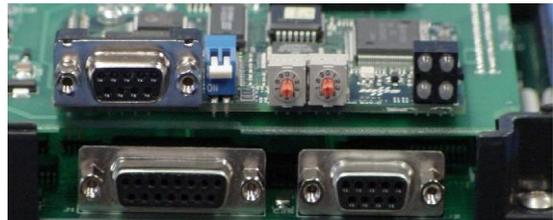
* +5V BUS and GND BUS are used for bus termination. Some devices, like optical transceivers (RS-485 to fiber optics) might require external power supply from these points. RTS is used in some equipment to determine the direction of transmission. In normal applications only A-Line, B-Line, and Shield are used.

6.1.3 ALLEN-BRADLEY DATA HIGHWAY PLUS

The Allen-Bradley Data Highway Plus Option Card has a special connector attached that is accessible from the bottom of the unit.

The option card has been connected to the backplane connector on the message controller unit. (The connector on the bottom right side of the card installs into the backplane connector.) The card is secured with two screws.

The Allen-Bradley Data Highway Plus PLC connector extends over the edge of the board. Next to the connector are two LEDs that illuminate to indicate status.
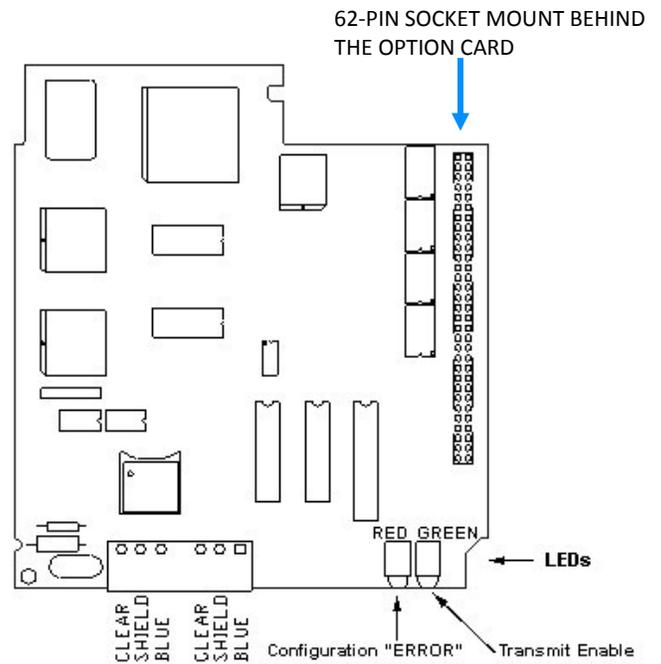

AB DH+ Option Card Outline

[a]