

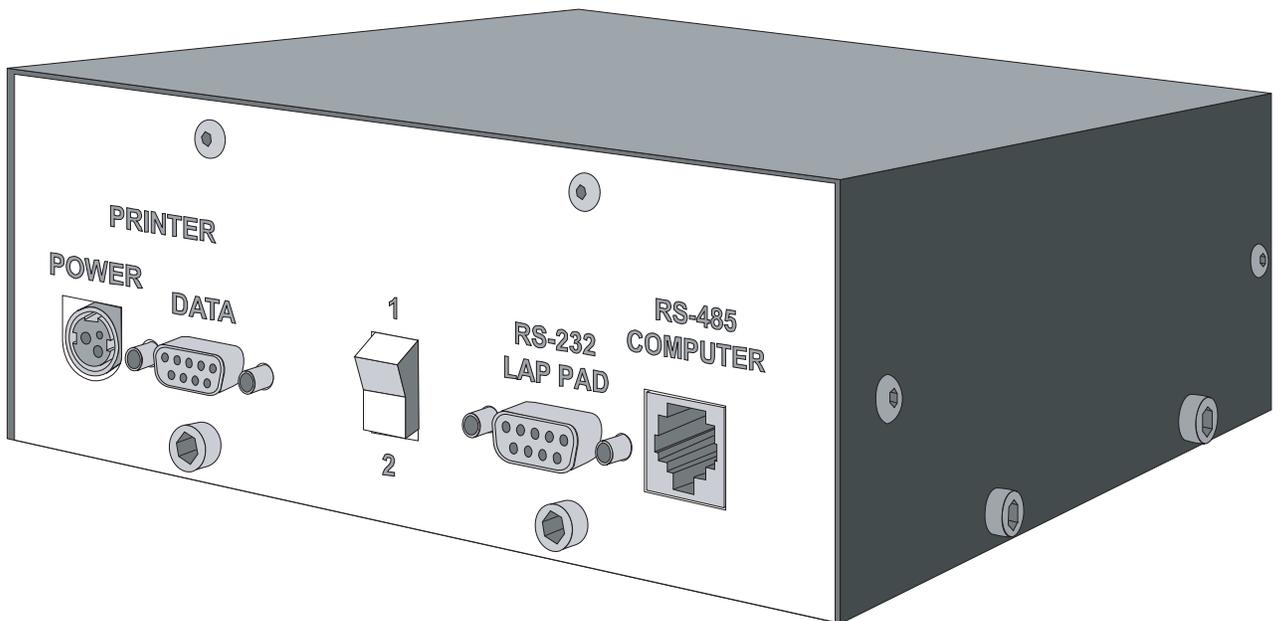


# Installation Manual

## Dual Meter Multiplexer, PN E25352

**LIQUID  
CONTROLS**  
A Unit of IDEX Corporation

**IDEX**  
IDEX CORPORATION



# Introduction

## Publication Updates and Translations

The most current English versions of all Liquid Controls publications are available on our website, [www.lcmeter.com](http://www.lcmeter.com). It is the responsibility of the Local Distributor to provide the most current version of LC Manuals, Instructions, and Specification Sheets in the required language of the country, or the language of the end user to which the products are shipping. If there are questions about the language of any LC Manuals, Instructions, or Specification Sheets, please contact your Local Distributor.

## ⚠ WARNING

- Before using this product, read and understand the instructions.
- Save these instructions for future reference.
- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of equipment and/or systems in accordance with all applicable codes and ordinances.
- Failure to follow the instructions set forth in this publication could result in property damage, personal injury, or death from fire and/or explosion, or other hazards that may be associated with this type of equipment.

This manual provides instructions for the installation of a Dual Meter Multiplexer with two LCR or LCR-II registers sharing a single printer.

The registers can be operated as stand alone units. They can also be operated from a Lap Pad, a Hand Held computer, or a Laptop computer. For this reason, it is important to ensure that the multiplexer is set up according to how it will be operated. This manual provides installation and setup instructions, it does not provide operation instructions for devices such as a Lap Pad, Hand Held, or Laptop computer.

The multiplexer is not a weather proof box. If the unit is to

be used on a fuel delivery vehicle, it must be installed inside the truck cab in a location where it will not get wet or stepped on. There are several cables that will be connected to this device. It is recommended that this unit be installed in a safe area where the cables cannot get disconnected or damaged.

This unit is enclosed in a 7" x 2-1/2" x 7-1/2" black, metal box. On the front side of the box there are connections for a printer and a Lap Pad, Laptop Computer, or a Hand Held PC. If a Laptop Computer is used, it is plugged into the same connection used for the Lap Pad. There is a toggle switch that is used for selecting one register or the other when using a Lap Pad. When using a computer, selection is done through software.

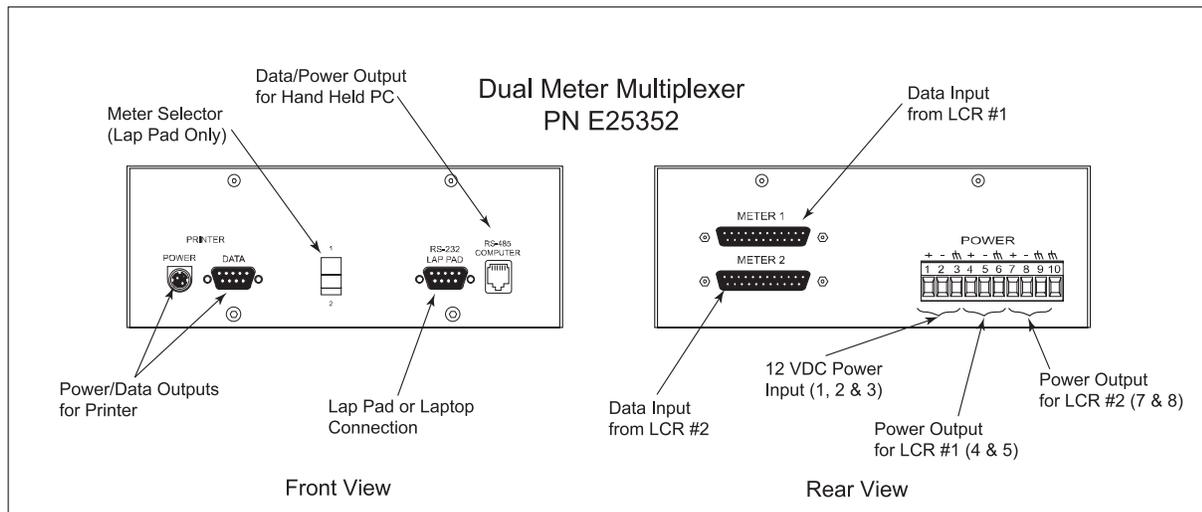


Figure 1.1 Dual Meter Multiplexer.

On the rear side of the multiplexer there are two DB25 female connectors where the LCR data cables connect.

There is a terminal block for the DC voltage input to the box and the DC voltage output to the LCR registers.

When looking for the proper place to install the multiplexer, the unit should be mounted:

- In a place where it will not be exposed to water or excessive dust.
- In an easily accessible location.
- Where cables cannot be pulled, bent or stepped on.
- Using sturdy metal brackets.
- Close to a good grounding spot.

This will ensure that the unit will not get damaged and that it is properly grounded.

The following instructions show how to install and set up the Dual Meter Multiplexer in different configurations, depending on which device will be used to control the LCR registers (Lap Pad, Hand Held PC, or Laptop PC).

**NOTE:** Make sure vehicle is OFF while the following procedures are being implemented.

## STEP 1: SET THE INTERNAL JUMPERS

The Multiplexer box has several jumpers inside that have to be set to a certain position depending on the device that will be used to setup the registers. Using a 5/64" allen wrench, remove the 8 black, socket head screws and remove the lid. Using needle nose pliers, set the jumpers to the position required and then replace the lid and tighten the screws.

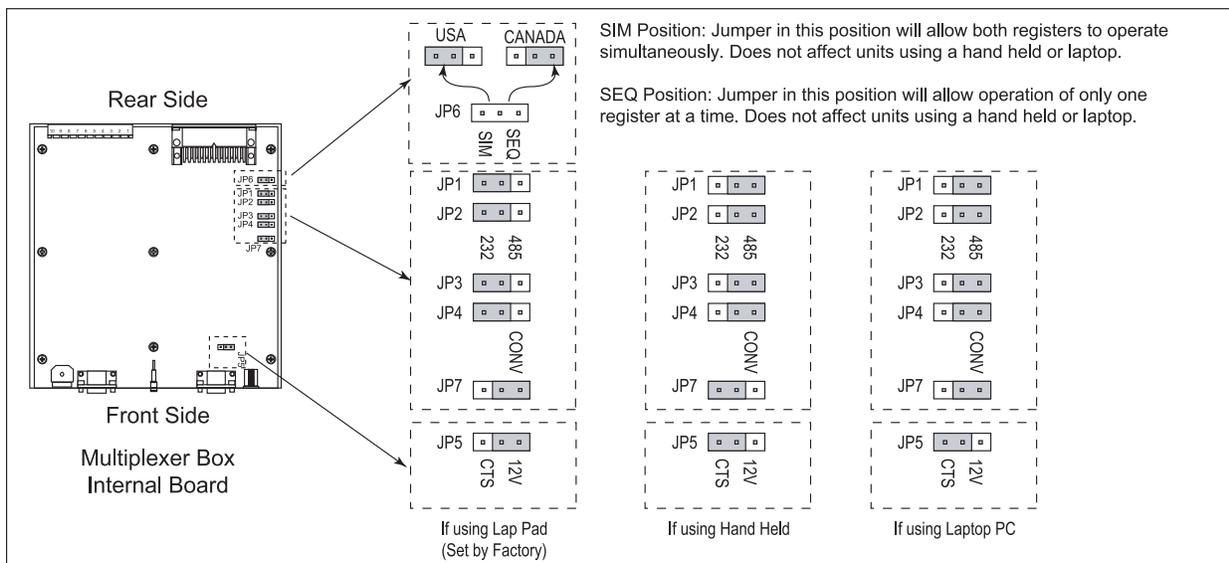


Figure 1.2 Multiplexer Internal Jumper Settings.

## STEP 2: INSTALL THE MULTIPLEXER AND CONNECT THE PRINTER

Install the multiplexer in its final location and make sure it is grounded properly. Next, plug in the data and the power cable into the front side of the multiplexer. Plug the other end of the cables into the back of the printer.

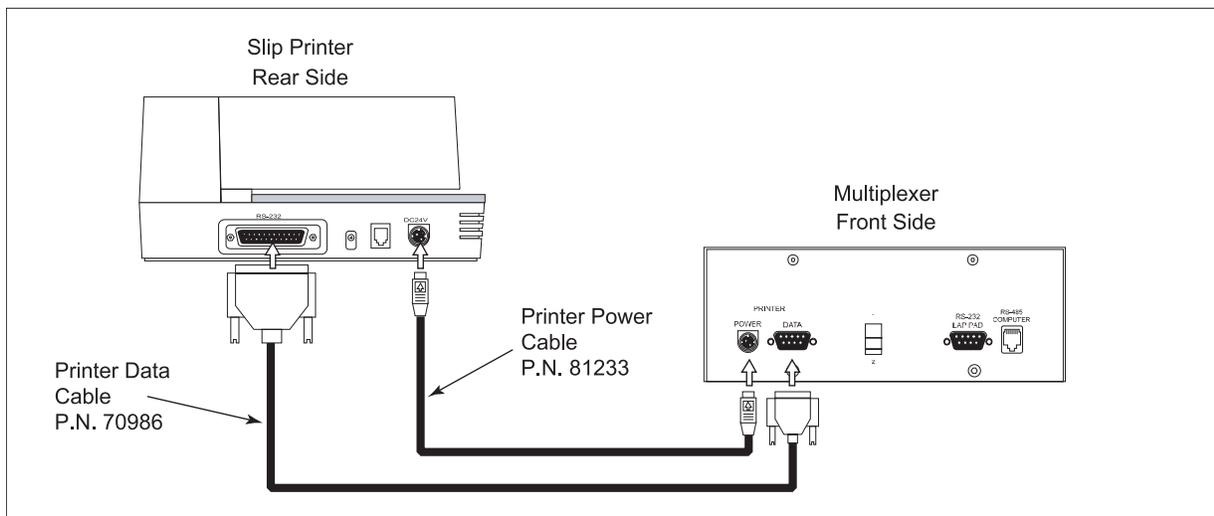


Figure 1.3 Printer Connection.

# Installation

## STEP 3: CONNECT REGISTER DATA AND POWER CABLES

Run the register's data and power cables through split loom, under the vehicle and connect them to the multiplexer box as indicated in figure 1.4.

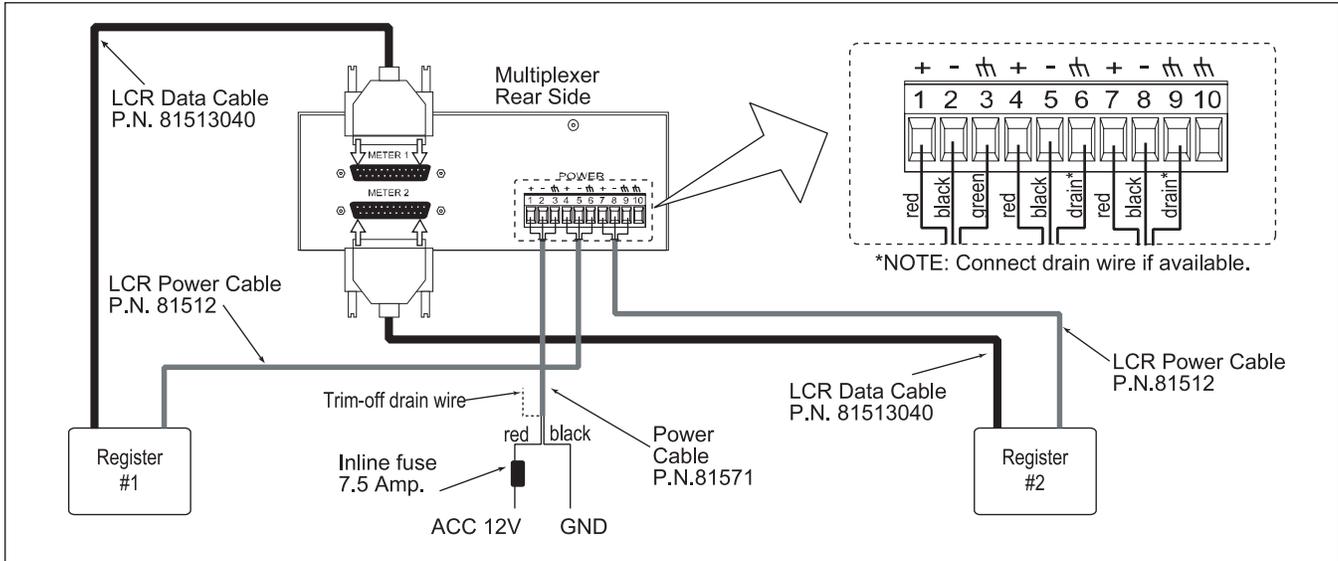


Figure 1.4 Data and Power Cable Installation

## STEP 4: SET UP THE REGISTER'S COMMUNICATION PROTOCOL

**NOTE:** Make sure the register is powered OFF before moving the jumper or the cables.

This step applies to systems that will use or be set up with a Hand Held or Laptop computer. If the system will operate with a Lap Pad, skip to STEP 5.

In order to communicate with a computer device, the cabling must be modified inside both register heads. Remove the RED and VIOLET cable from terminal block J3 and wire them into terminal J2. Move the J10 jumper to the 485 position or, if a protocol switch is installed, move J10 to the DOWN position.

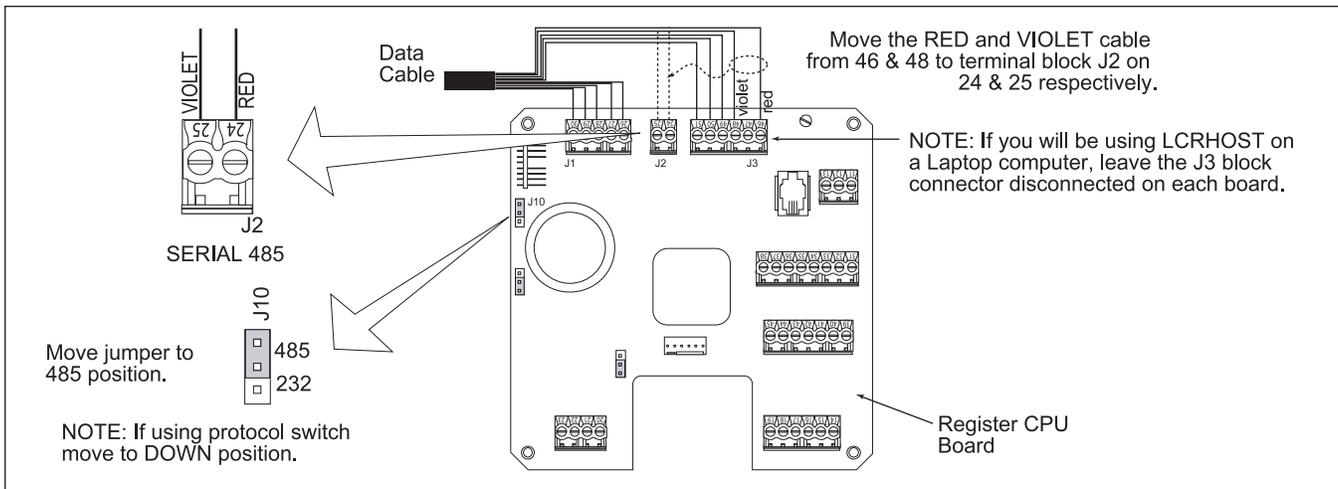


Figure 1.5 Register Setup

## STEP 5: CONNECT CONTROL DEVICE

Connect the control device to be used, such as a Lap Pad, Hand Held PC, or a Laptop computer, to the multiplexer. If using a Lap Pad, plug in the Lap Pad connector into the front side of the multiplexer in the DB9 female port labeled as "RS-232 Lap Pad".

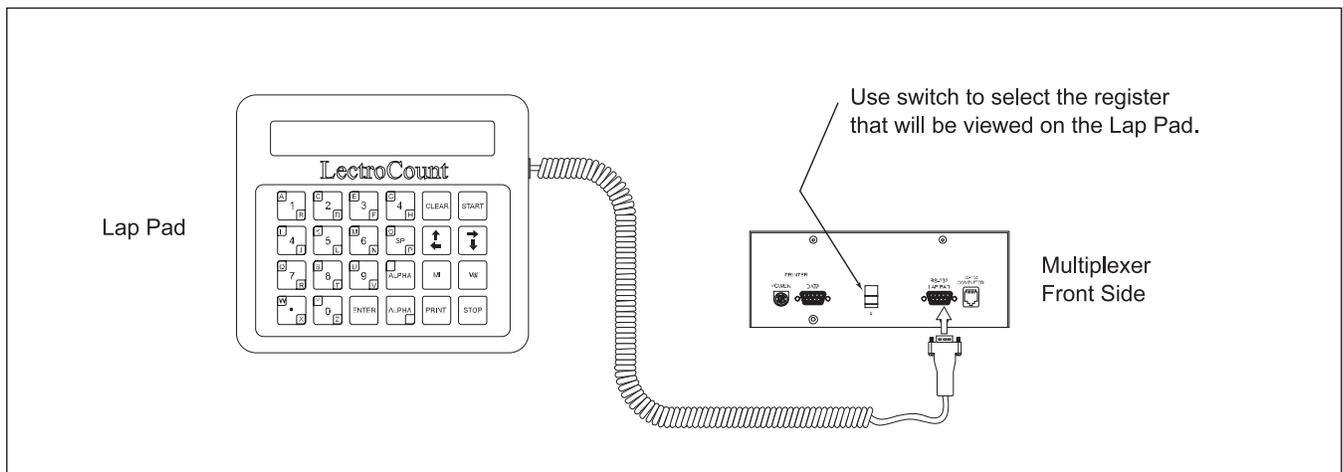


Figure 1.6 Connecting the Lap Pad

If using the Liquid Controls Hand Held PC, connect the coiled cable to the port located on the front side of the multiplexer labeled “RS-485 Computer”. If the Hand Held being used is from a different manufacturer, refer to the Installation Manual provided with that device.

Before powering up the system, make sure that there is a PCMCIA RAM card inserted in the Hand Held. Even if the RAM card is blank, it should still be inserted in the Hand Held, otherwise, an “Abort, Retry, Ignore” error message will appear. Once the RAM card is inserted and the system is powered, do not remove it. To remove the card, power off the system and then remove it.

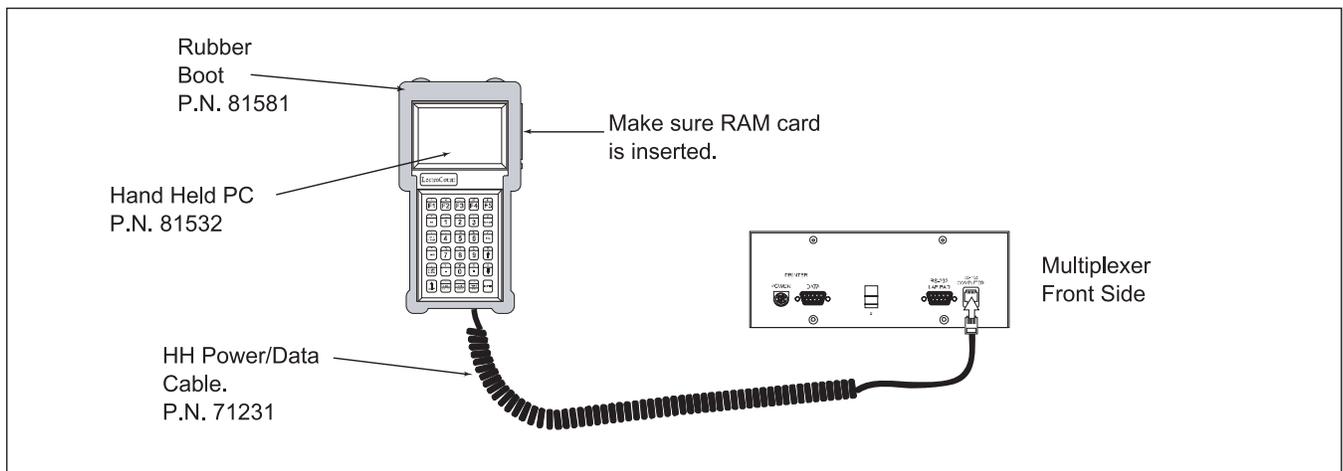


Figure 1.7 Connecting the Hand Held PC

If using a Laptop computer with HOST software to control or set up the registers, a 9 pin serial extension cable must be used. Plug the MALE end of the cable into the front side of the multiplexer on the port labeled “RS-232 Lap Pad”. Plug the other end of the cable into the RS-232 Port of the Laptop computer. This cable is not provided by Liquid Controls but it can be acquired at an electronics or computer store.

Once the Laptop computer is connected to the multiplexer, the LCRHOST.exe program (loaded on the computer) is used to communicate with the LCR registers. If using a software application other than LCRHOST, refer to the User Manual provided with that software.

# Installation

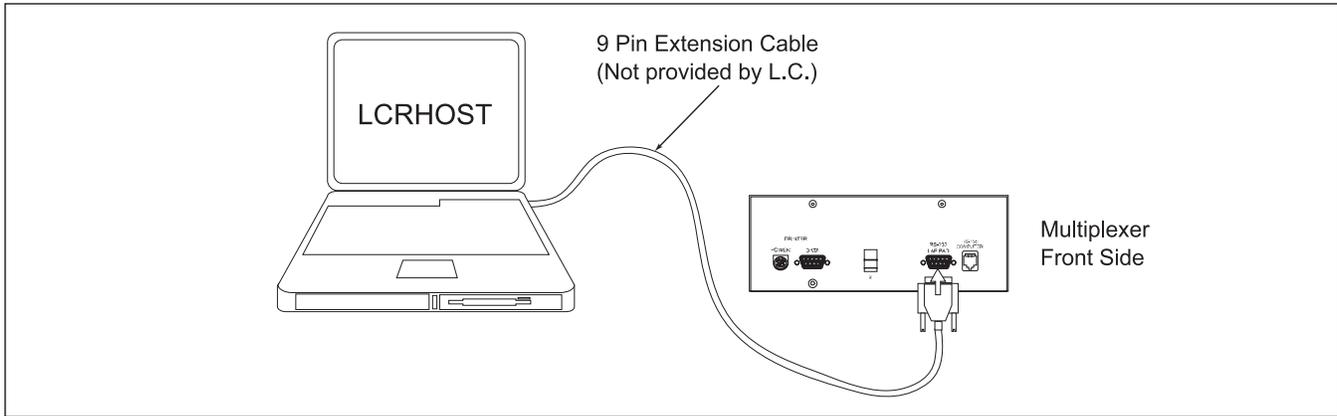


Figure 1.8 Connecting a Laptop Computer

Once installation of the final control device is complete, power up the system and proceed to set up the registers. If using a Lap Pad, select which register to setup. For a system using a Hand Held or Laptop computer, first set up the communication between the computer and the registers. To do this, follow the procedure corresponding that device.

## SETTING THE COMMUNICATION ON A HAND HELD COMPUTER.

- 1- Power up the units. The Hand Held will reboot and possibly display an error message such as: "LCR #0 not found". This is normal since the unit is new and the PCMCIA card has no data. Press the **F5** key to go to the Main Menu.
- 2- The "**MAIN MENU ACCESS KEY**" message will be displayed. Currently, there is no password. Press the **ENTER** key.
- 3- The Main Menu is now displayed. Move the cursor to **SETUP NETWORK** and press the **ENTER** key. The "**SETUP NETWORK**" screen will be displayed with all lines dashed out.
- 4- Press the **F3** (NEW) key. The "**NEW NETWORK NUMBER**" message will be displayed. Type the number **8** and press the **ENTER** key. All lines will now display different information. Do not change this information.
- 5- Press the **F1** key. The "**SETUP NETWORK DEVICES**" screen should be displayed.
- 6- Disconnect the cable for **METER #2** from the multiplexer.
- 7- Press the **F2** key. Move the cursor down to **YES** and press the **ENTER** key.
- 8- The message "**NEW DEVICE NUMBER - 1**" will be displayed. Press the **ENTER** key.
- 9- The message "**NEW DEVICE CONNECTED**" is displayed. Reconnect the data cable for **METER # 2** to the multiplexer and move the cursor down to **YES** and press the **ENTER** key.
- 10- The "**NEW DEVICE NUMBER - 2**" message is displayed. Press the **ENTER** key.
- 11- The "**NEW DEVICE CONNECTED**" message is displayed. Press the **ENTER** key on **NO**.
- 12- Press the **F5** key to exit to the "**SETUP NETWORK**" menu. Press **F5** again to exit to the Main Menu.
- 13- Press **F1** to exit the Main Menu. The unit should now be on the **PRESET AND DELIVERY** screen. The registers are now communicating with the Hand Held.
- 14- Before the registers can be used, both units must be set up and calibrated. For these procedures, refer to the Hand Held Users Manual.

## SETTING THE COMMUNICATION ON A LAPTOP COMPUTER.

- 1- Power up the system and run the LCRHOST program on the computer. Make sure the communication cable is connected as indicated on figure 1.8. If this is the first time using the LCRHOST program, "LCR#0 NOT FOUND" will be displayed. This is normal since communication has not been established.
- 2- Press the **F5** key to go to the **MAIN MENU**. The "**MAIN MENU ACCESS KEY**" message will be displayed. Currently, there is no password. Press the **ENTER** key.
- 3- The Main Menu is now displayed. Move the cursor to **SETUP NETWORK** and press the **ENTER** key. The "**SETUP NETWORK**" screen may be displayed with all lines dashed out. If you have used the LCRHOST program before on this computer, each line will already have some information.
- 4- Press the **F3** (NEW) key. The "**NEW NETWORK NUMBER**" message will be displayed. Type the number **8** and press the **ENTER** key. All lines will now display different information.
- 5- Move the cursor down to **TX ENABLE BIT** and press the **ENTER** key. Move the cursor down to **IRTS!DTR** and press the **ENTER** key.
- 6- Press the **F1** key. The "**SETUP NETWORK DEVICES**" screen should be displayed.
- 7- Disconnect the cable for **METER #2** from the multiplexer.
- 8- Press the **F2** key. Move the cursor down to **YES** and press the **ENTER** key.
- 9- The message "**NEW DEVICE NUMBER - 1**" will be displayed. Press the **ENTER** key.
- 10- The message "**NEW DEVICE CONNECTED**" is displayed. Reconnect the data cable for **METER # 2** to the multiplexer and move the cursor down to **YES** and press the **ENTER** key.
- 11- The "**NEW DEVICE NUMBER - 2**" message is displayed. Press the **ENTER** key.
- 12- The "**NEW DEVICE CONNECTED**" message is displayed. Press the **ENTER** key on **NO**.
- 13- Press the **F5** key to exit to the "**SETUP NETWORK**" menu. Press **F5** again to exit to the main menu.
- 14- Press **F1** to exit the Main Menu. The unit should now be on the **PRESET AND DELIVERY** screen. The registers are now communicating with the laptop computer.
- 15- Before the registers can be used, both units must be set up and calibrated. For these procedures, refer to the LCRHOST Manual.

# **LIQUID CONTROLS GROUP**

IDEAL SOLUTIONS INTEGRATED SYSTEMS

**LIQUID CONTROLS EUROPE • LIQUID CONTROLS SPONSLER**

**LIQUID CONTROLS • LIQUID CONTROLS INDIA**

**FAURE HERMAN • TOPTECH SYSTEMS**

**CORKEN • SAMPI**



**LIQUID CONTROLS**

105 Albrecht Drive  
Lake Bluff, IL 60044  
(847) 2951050

**LIQUID CONTROLS EUROPE/SAMPI**

Via Amerigo Vespucci 1  
55011 Altopascio (Lucca), Italy  
+39 (0) 583 247600

**LIQUID CONTROLS INDIA**

808 VCCI Complex  
Gidc Makarpura  
Vadodara-390 101  
Gujarat, India  
+91 265 2631855

**LIQUID CONTROLS SPONSLER**

2363 Sandifer Boulevard  
Westminster, SC 29693  
(864) 647-2065

**TOPTECH SYSTEMS**

280 Hunt Park Cove  
Longwood, FL 32750  
(407) 332-1774

Nateus Business Park  
Nieuwe Weg 1-Haven 1053  
B-2070 Zwijndrecht (Antwerp), Belgium  
+32 (0)3 250 60 60

**FAURE HERMAN**

Route de Bonnetable  
B.P. 20154  
72406 La Ferté-Bernard Cedex, France  
+33 (0) 243 0602860

6961 Brookhollow West Drive  
Houston, TX 77040  
(713) 623-0808

**CORKEN**

3805 Northwest 36<sup>th</sup> St.  
Oklahoma City, OK 73112  
(405) 946-5576



**LIQUID CONTROLS**

A Unit of IDEX Corporation  
105 Albrecht Drive  
Lake Bluff, IL 60044-2242  
1.800.458.5262 • 847.295.1050  
Fax: 847.295.1057  
www.lcmeter.com

© 2007 Liquid Controls  
Pub. No. 500315  
(07/20/07)



**DNV**  
CERTIFICATED FIRM  
Certificate No. 08732



**DNV**  
CERTIFICATED FIRM  
Certificate No. 05049