

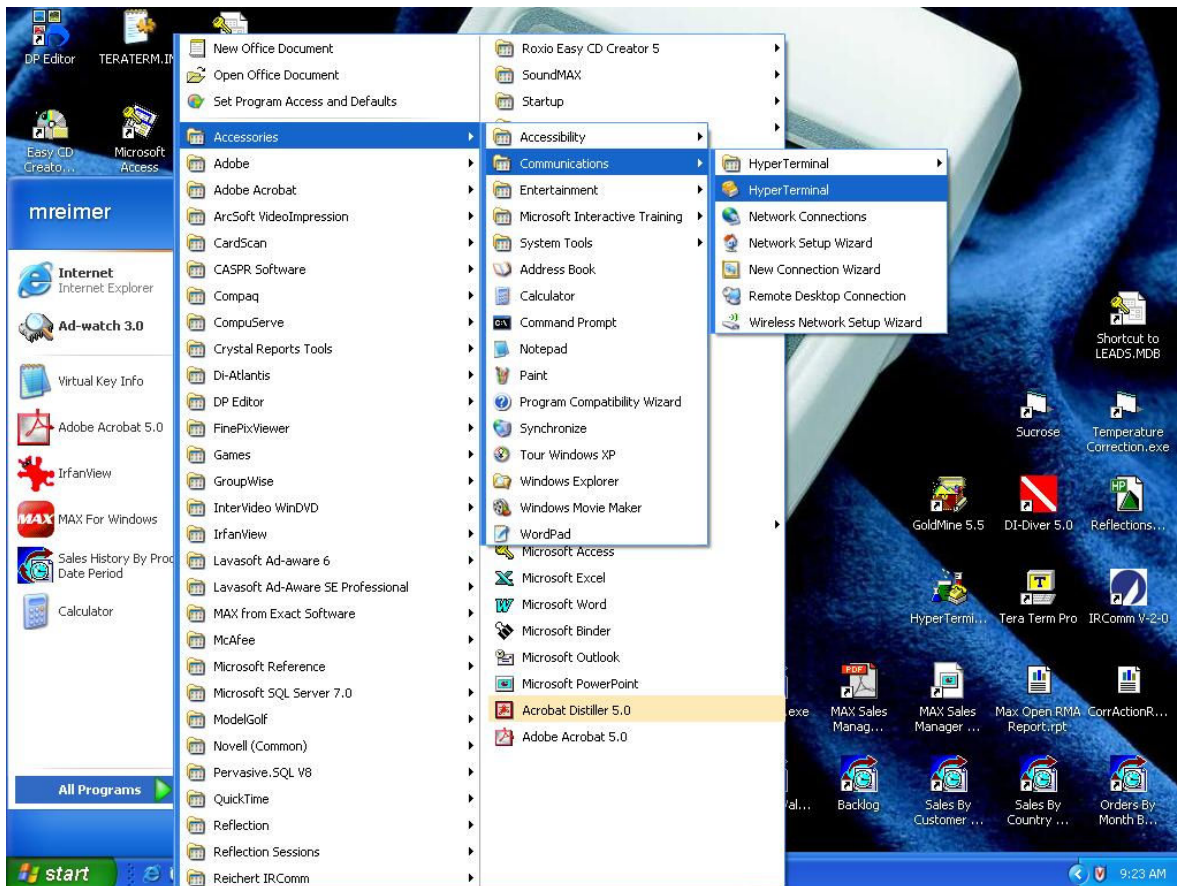
# Technical Bulletin

## SERIAL COMMUNICATION INSTRUCTIONS

Following are detailed instructions for connecting a computer to a refractometer via the serial port:

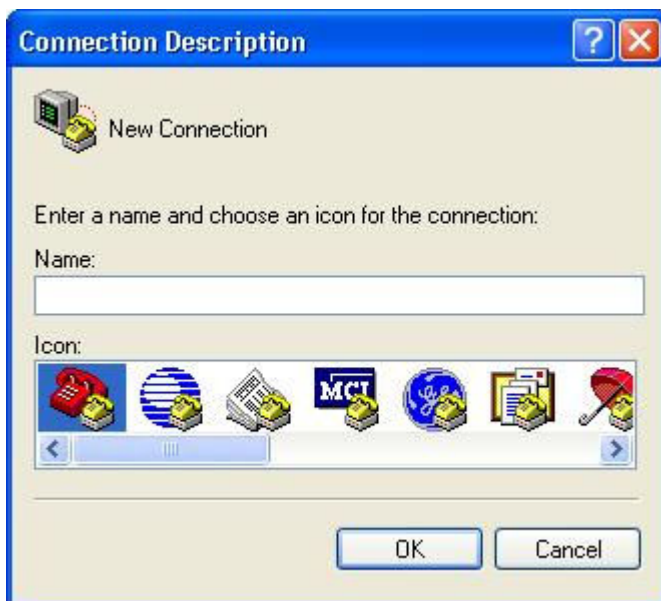
1. The first step is to set up the automatic refractometer as you normally would. For the AR6 Series, AR7 Series, or ARIAS 500, turn the instrument on and wait for the title screen to appear. If you are programming an AUTOABBE, you will need to initiate and calibrate the instrument.
2. Connect the refractometer with the computer via the RS232 port (9 pin) on the refractometer and one of the COM ports on the computer (also a 9 pin port). Be sure to use a suitable connecting cable (an RS232 - 9 pin serial cable available at any electronics or computer store).
3. On the computer, you will need to use a communications program to interface. Most Windows based computers are loaded with HyperTerminal, which is a standard serial communications program. To access HyperTerminal, go the Windows Start button and open it, go up to "Programs", then "Accessories", then "Communications". You then need to click on HyperTerminal. This will open a window listing several programs. Open the one entitled "HyperTerminal.exe" or just "HyperTerminal" if no files extensions are listed.

# Memo



4. When you open Hyper Terminal it will ask you to choose a name and an icon for the connection that you will establish. This is so that when you are finished the settings can be saved and referenced directly, so that you can run your connection without having to readjust these settings every time. Choose a name and icon that you are comfortable with and click on "OK".

# Memo



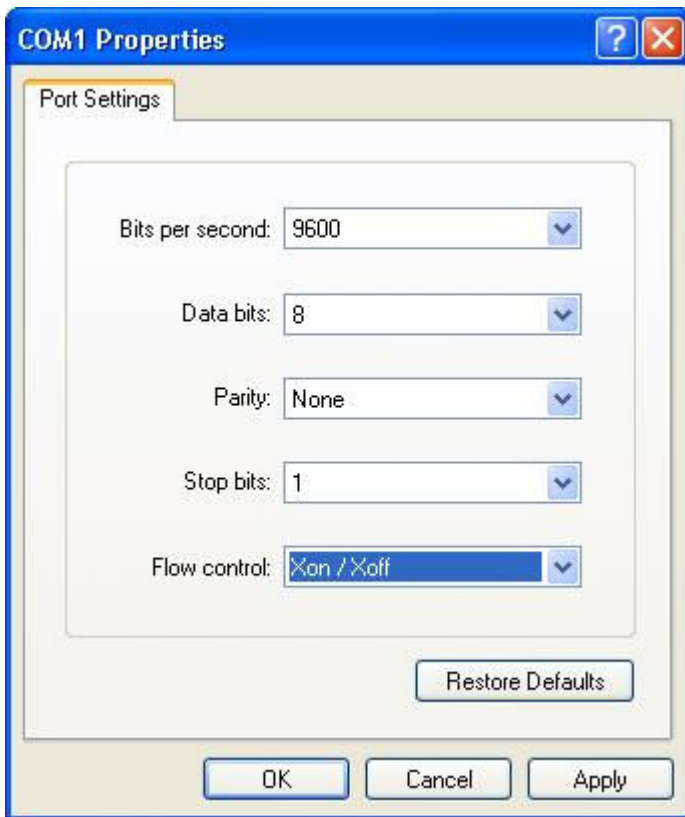
5. The next thing you see will be a new box labeled “Phone Number”, inside which you will see your icon and connection name as well as some other information. The box tells you to enter the details of the phone number you wish to dial. Since we are directly hooked up to the computer, go down to the “Connect Using” box, and cycle through until you reach the COM port that you are using and select that (typically it will be COM1). Click on “O K” when finished.

# Memo



6. The next box that will be displayed will be your COM port settings box. If you chose COM port 1 it will read "COM1 Properties". Set these values to the values for your refractometer. The baud rate is adjustable, but I recommend 9600 for sending custom channels. Be sure to set the refractometer and HyperTerminal to the same baud rate. There are 8 data bits, no parity, 1 stop bit, and Flow Control can be set at Xon/Xoff. This information is found in your refractometers' instruction manual. When you have selected the correct properties, click on "O K".

# Memo



7. You are now connected and ready to run!

**TROUBLESHOOTING TIPS:** If you do not see the characters or they appear as strange text characters on the screen as you are typing, there are three possible solutions:

1. You are not connected to the proper COM port on your computer. Be sure that the COM port you selected is the COM port you are using.
2. The cable you are using is not correct. You need to use a "Straight-Through" 9 pin to 9 pin RS232C shielded serial cable. Do not use a "Null Modem" cable, or adaptor, which crosses pins 2 and 3 from one end to the other.
3. The echo has been turned off from the refractometer. In this case, though you cannot see the text that you are typing, any response from the refractometer will be shown on-screen. To verify this, type the command "echo set" and press <Enter> on your computer. You should receive a reply from the refractometer "ECHO SET"
4. The baud rate set in HyperTerminal does not match that of the refractometer. If you change the baud rate in HyperTerminal you will need to click on the disconnect button (looks like a phone with the receiver off the hook). Next, click on the properties button (looks like a hand holding an envelope) and reset the values, after that click on the connect button.