

Application Note

Using NI Max to communicate to the 7660 Precision LCR Meter via TCPIP socket

Summary

The IET 7660 is designed for applications requiring automation of an LCR meter. The 7660 has LAN, USB and GPIB interfaces for communication to a PC or similar controller.

This application note gives a simple example of using NI Max to communicate with the 7660 Precision LCR Meter.

This application note will deal with LAN connection, however NI Max can easily be used for GPIB or USB communication.

This example will use National Instrument NI Max Measurement and Automation Explorer version 2022 Q3 to communicate with the 7660 Precision LCR Meter.

Installing the NI-488.2 driver from the link below will also install the latest version of NI Max. NI Max is useful in that you can explore RS-232, USB, LAN and GPIB communications all from one program. NI-488.2 driver can be found at <https://www.ni.com/en-us/support/downloads/drivers/download.ni-488-2.html#467646>

Example

This example uses a PC with a Windows 10 operating system and NI Max Measurement and Automation Explorer version 2022 Q3.

Plug the ethernet cable into the back of the 7660 Precision LCR Meter into the LAN port.

On the 7660 go to I/O>>Interfaces, Select LAN and make sure LAN Conf is set to Auto DHCP. Once complete save this setup as default by going to



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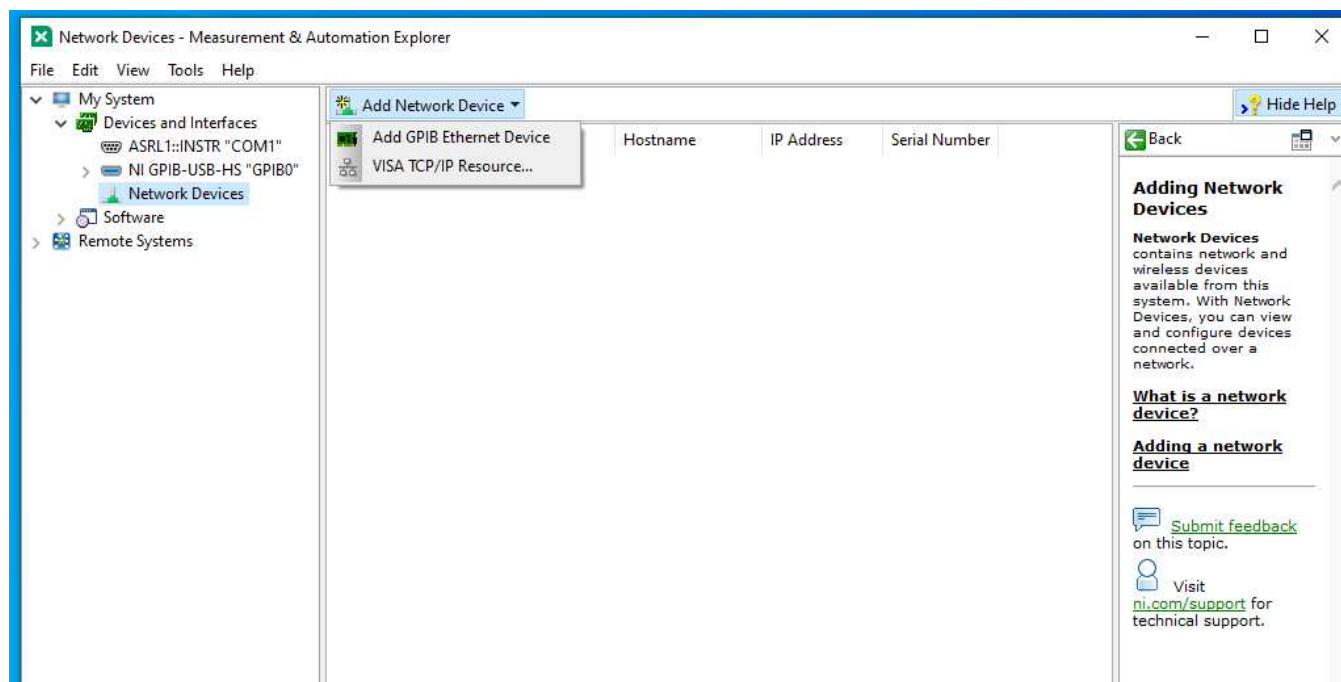
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Utilities>>Save/Recall Setup and Save as default. This way each time the 7660 is turned on it will default to LAN.

1.) On the PC open NI Max, Select Network Device and Add Network Device “Visa TCP/IP Resource”. As shown in the screenshot below



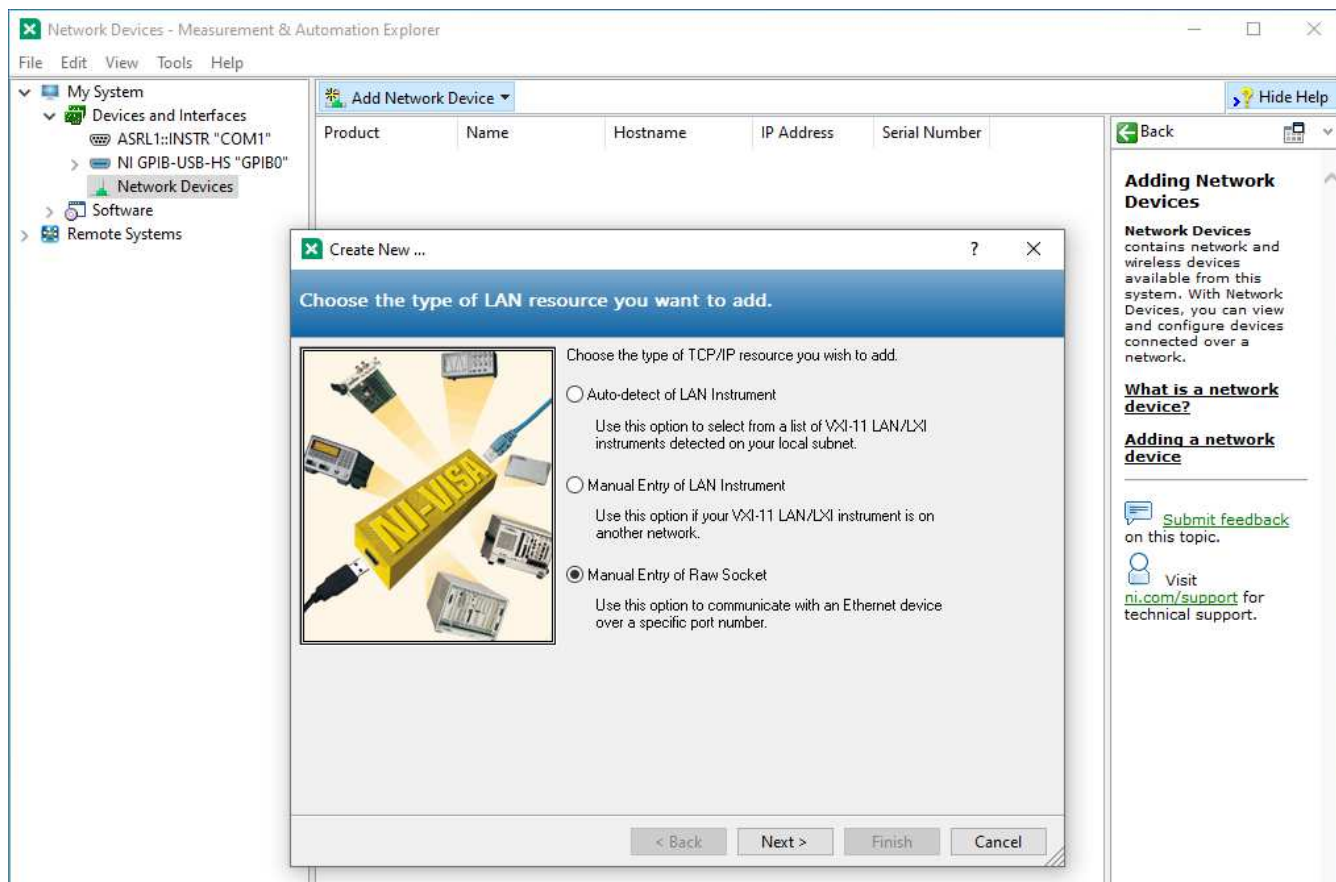
This will open a Create New dialog box

2.) Select Manual Entry of Raw Socket from the Choose Type of LAN resource you want to add dialog and click on the Next button



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3.) The next step is to Enter the LAN resource details

On the 7660 go to I/O>>Interfaces>>LAN>>Conf and look at the LAN settings.

This should show current settings and CONNECTED. If it does not show CONNECTED then check LAN cable and router.

In this example the 7660 shows

LAN Status CONNECTED PORT 111

Current IP Address 192.168. 0.184

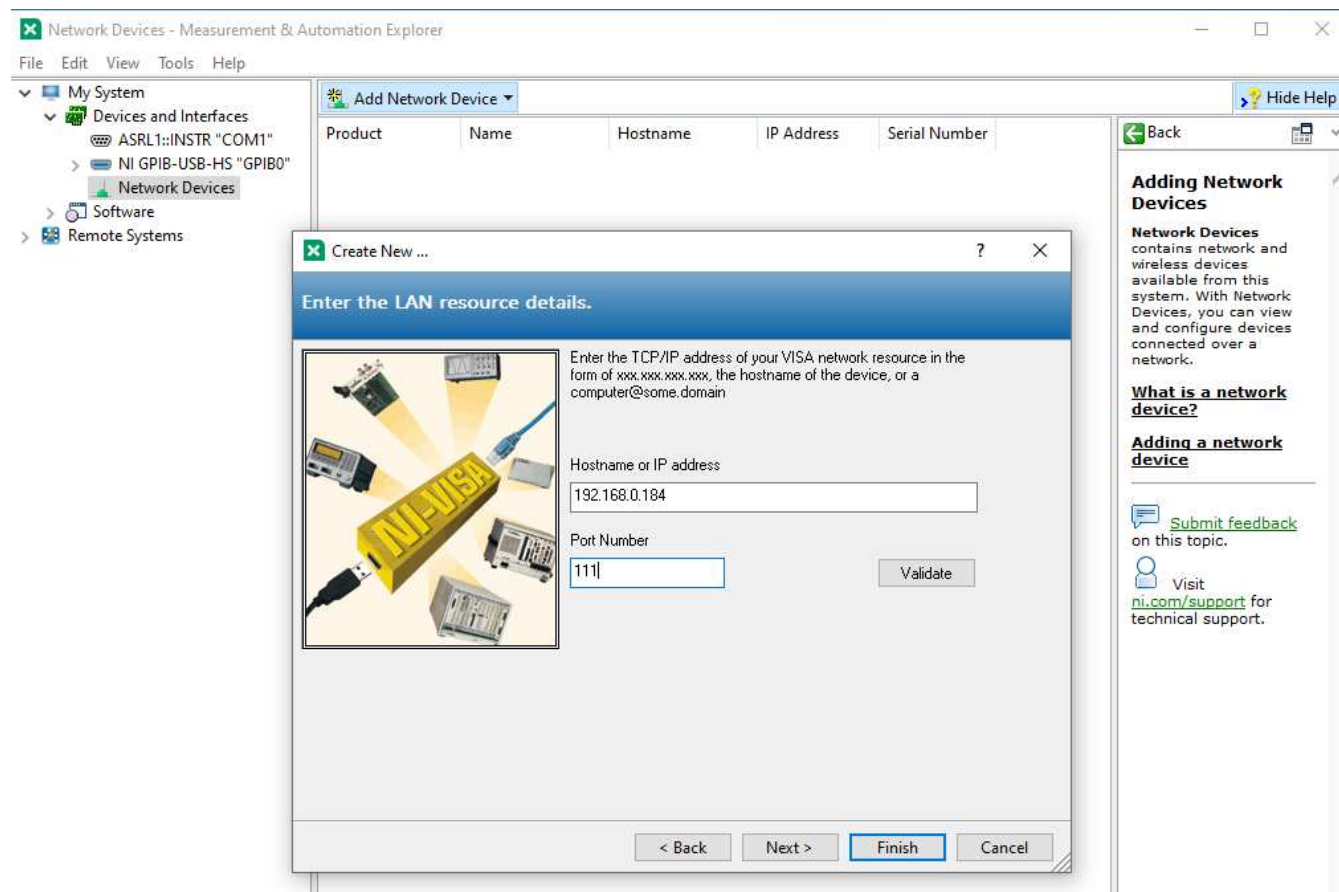
Write down the Current IP Address and PORT number and go back to main menu of the 7660.



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Enter the Current IP address and port number into the Enter the LAN resource details dialog fields and click on Finish as shown below.

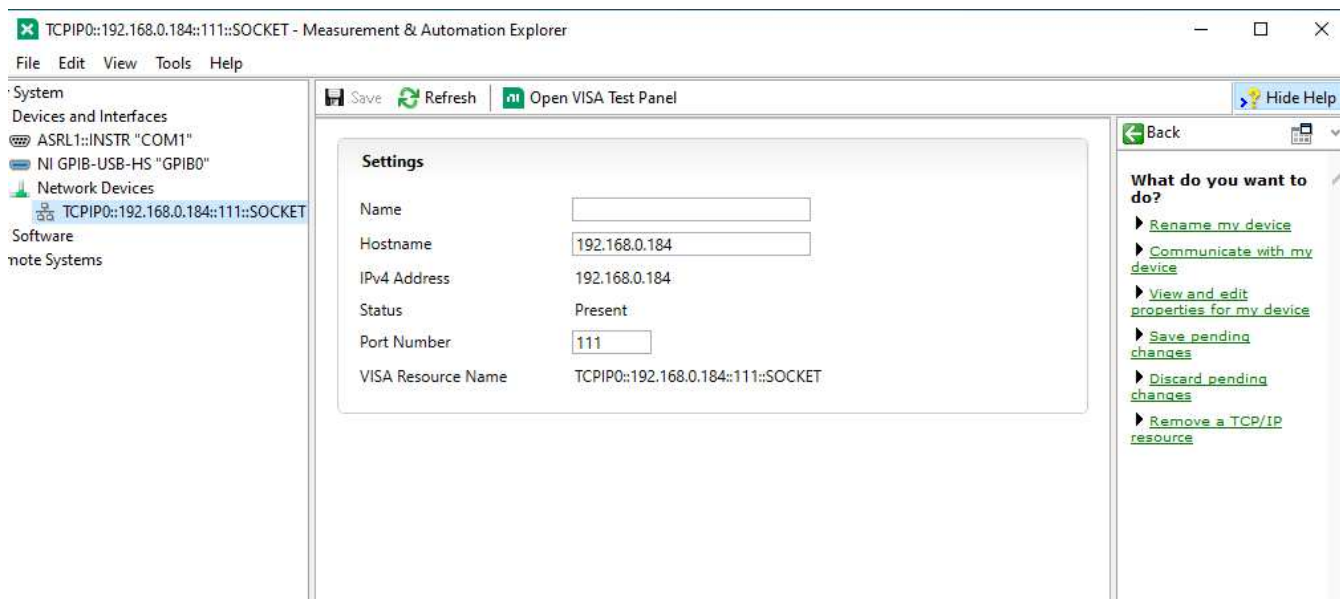


4.) Adding the network resource is complete and you should see the screen below showing a TCPIP0:<ip address>::<port>::socket under Network Devices.



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5.) Adding the network resource is complete and TCPIP0:<ip address>::<port>::socket device will be shown under Network Devices.

Click on Open VISA Test Panel and select Configuration and I/O Settings tab

Click on ieee.2 Strings under I/O Protocol and Enable Termination Character under Termination Methods and then click on Apply Changes when complete.

The screen should look like the screenshot below.

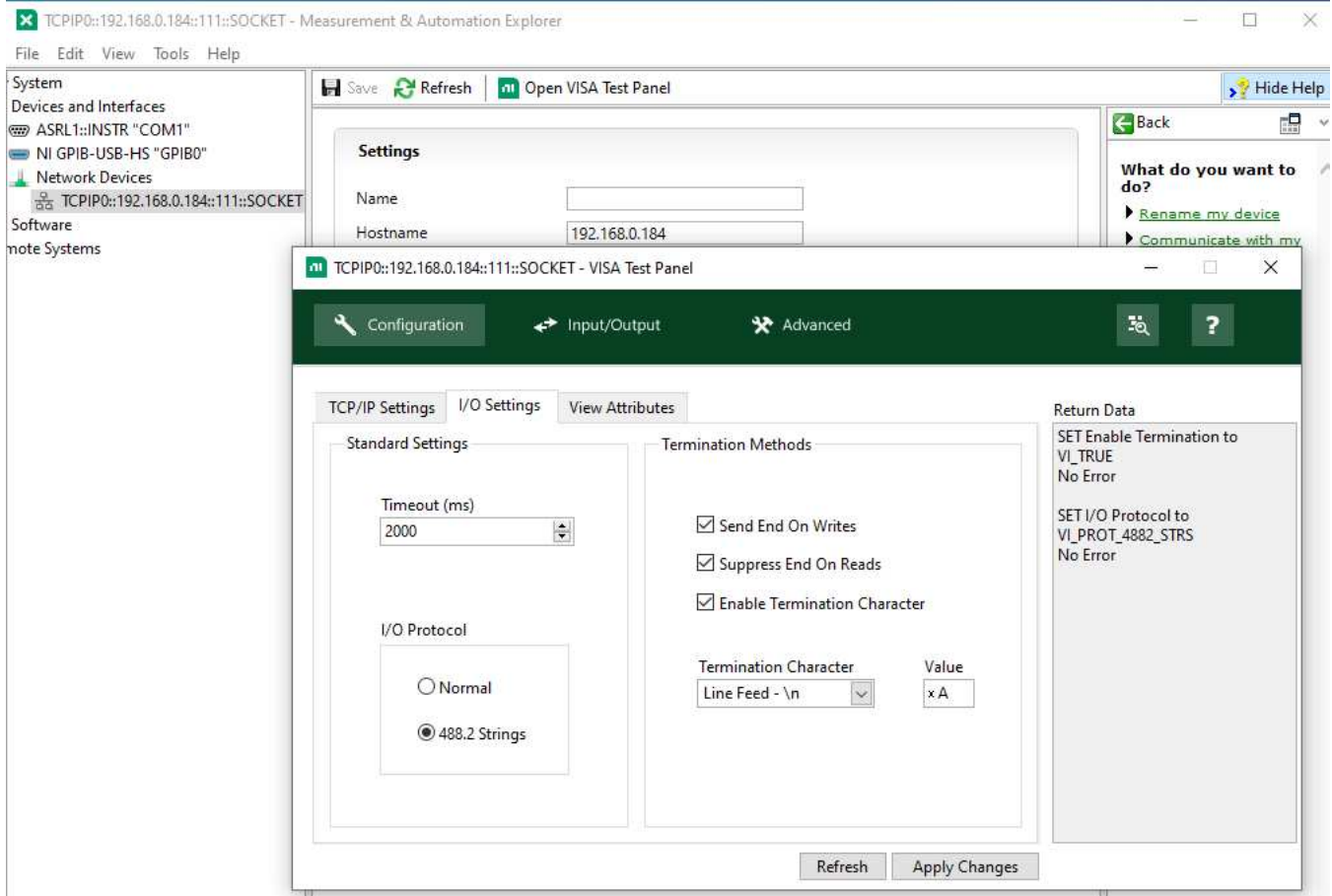


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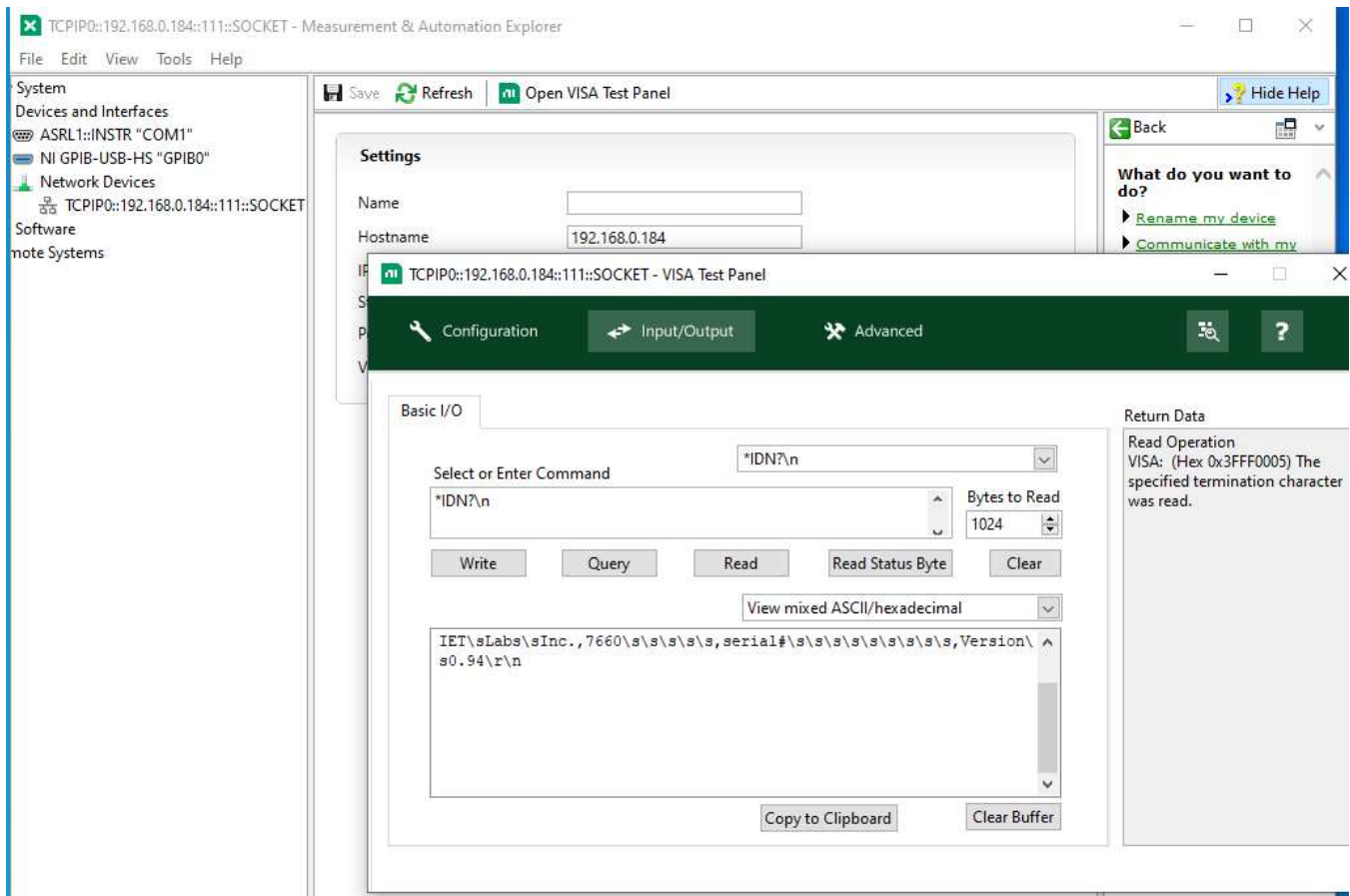
6.) Click on Input/Output tab and the Select or Enter Command should show *IDN?\n

Click on the Query button and the command will be sent to the 7660 and a response will be shown. It should like the screenshot below.



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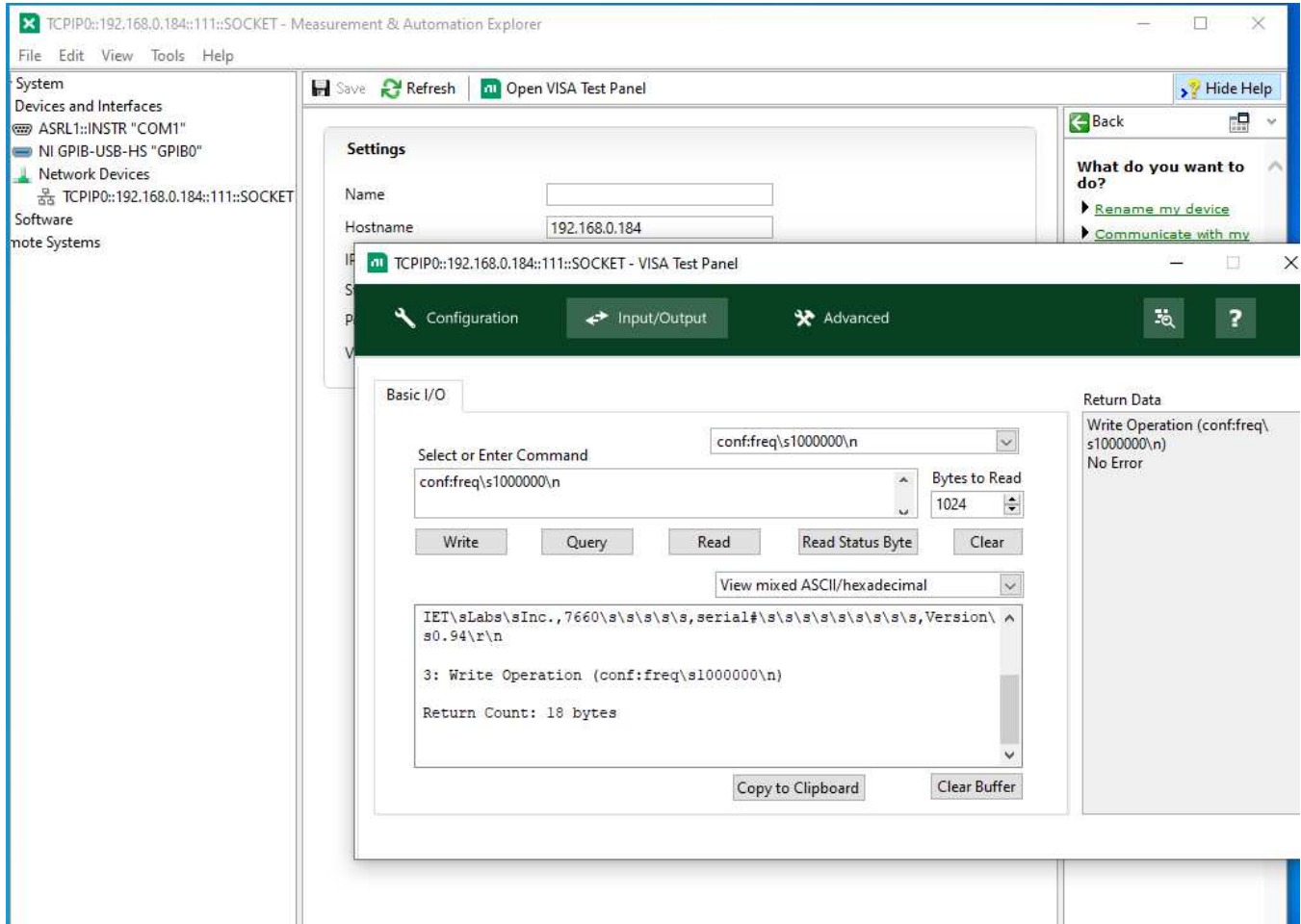
Application Note



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Application Note

7.) In the Select or enter Command box enter [conf:freq](#) 100000\n. Then click on Write. This will write the command to change the frequency on the 7660. Note the display on the 7660 will not update until you cycle between menus.

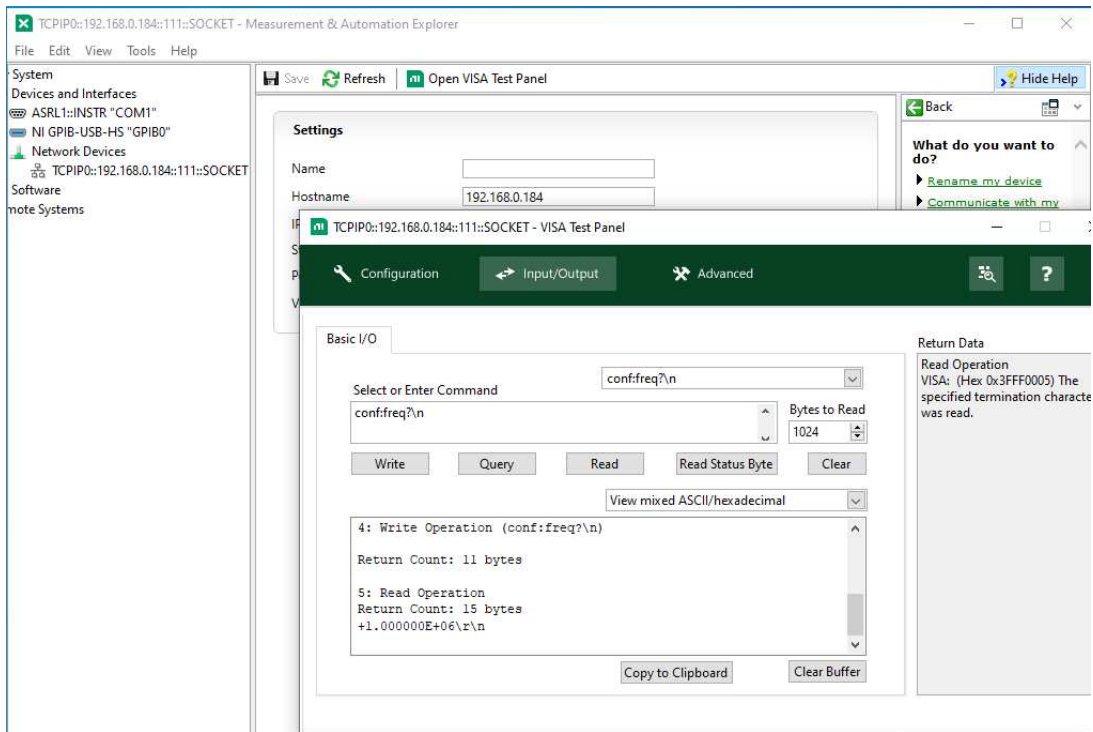


You can verify that the frequency was changed by sending [conf:freq?](#)\n and click on the query button. See screenshot below



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Conclusion

The application note has hopefully shown that the 7660 can easily be controlled via the LAN connection and TCPIP socket and NI Max.

This should give you a starting point to create your own program to control the 7660 Precision LCR Meter.



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035217 A1 10 of 10