

DMM4020, DMM4040, and DMM4050 Connectivity Installation Manual



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Tektronix

**DMM4020, DMM4040, and DMM4050
Connectivity
Installation Manual**

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Table of Contents

Introduction to DMM Connectivity 1

USB-to-RS232 Serial Cable Installation 1

LabVIEW SignalExpress Step Installation 4

Introduction to DMM Connectivity

You can connect the digital multimeter (DMM) to the USB port on your MS-Windows personal computer (PC) through the USB-to-Serial cable that comes standard with your DMM. The serial end of the cable attaches to the RS-232 port on the rear panel of the DMM, and the other end plugs into a USB port on the PC.

You can connect to a PC with a serial port through the serial port on the rear-panel of the DMM.

You can connect to a PC with IEEE-488 capability through the IEEE-488 port on the rear panel of the DMM4040 or DMM4050.

The USB port on the front panel of the DMM4040 or DMM4050 is for USB memory devices, not for connecting to a remote PC.

USB-to-RS232 Serial Cable Installation

To use the cable, you need to install the USB-to-RS232 drivers on your PC. This allows the USB-to-RS232 cable to communicate between the DMM and the PC. To install the drivers, use the Documentation Browser CD, or plug in the USB-to-RS232 adapter and use your PC Wizard to locate and install the drivers.

On the DMM4040 or DMM4050 DMM, after you install the drivers, you can select and set up an interface port by pushing the front-panel instrument setup key, labelled **Instr Setup**, then pushing the buttons under the display with the resulting labels **Select Port**, **Port I/F** and **RS-232C** (highlighted when selected).

Installation Instructions for the USB-IR Optical Serial Cable

Revision: II

Version: v1.0.2176 for WinXP/2K

v1.09.06 for WinME/98

1. PC Requirements. To use the USB-IR serial cable, your Windows PC must meet the following requirements:

- a) Have an available USB port on the PC, or on a USB Hub connected to the PC.
- b) Your PC must be running one of the following versions of Windows:
 - Windows XP (Home or Professional)
 - Windows 2000
 - Windows ME
 - Windows 98 Second Edition (only the Second Edition of Windows 98 supports USB)

If you have a later version of Windows, you can check online at: www.tektronix.com for an updated list of compatible versions.

The USB-IR serial cable is not supported on Windows 95, Windows NT, or Windows 98 (original edition) operating systems, which do not support USB.

c) To install the drivers for the cable on Windows XP or Windows 2000, you must be able to login to Windows with Administrator privileges.

2. Installing the USB-IR Cable Drivers.

a) If your PC is running Windows XP or Windows 2000, log into an account with Administrator privileges.

b) Plug the USB side of the USB-IR serial cable into an available USB port on your PC, or into a USB hub connected to your PC. Plug the serial side into the RS-232 port on the rear panel of your DMM.

c) Windows will respond that it has *found new hardware*, and the Windows Hardware Wizard dialog will appear.

d) Follow the instructions from the wizard to install the new hardware.

e) For a detailed installation guide, follow the **Installation Guides** link provided on the Documentation Browser CD.

f) For automatic downloading of the latest driver from the Internet, allow Windows XP or Windows 2000 to search Microsoft Windows Update for updated software when asked.

To load the drivers from the Documentation Browser CD supplied with the cable, select **Specific Location** to install the drivers from the CD.

g) The Hardware Wizard will find the FT232R USB UART driver and install the USB Serial Converter.

h) Additionally, the Windows *found new hardware* wizard will run again to install the USB Serial Port.

i) The Hardware Wizard will finish.

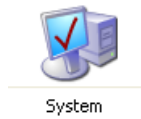
The USB-IR cable drivers have now been installed on the PC. On some systems, you may need to reboot the PC once following the driver installation before you can use the USB-IR cable.

3. Determining the USB-IR Cable's COM Port. Once you have installed the USB-IR cable drivers and assigned a virtual COM port to your USB-IR cable, you can use this COM port to perform serial communications over your USB-IR cable.

To find out which COM port is associated with your cable, do the following:

a) Ensure that you have attached the cable to the PC, or to a USB hub connected to your PC.

b) Go to the Windows Control Panel. Open the **System** applet. This brings up the **System Properties** dialog box.



c) Open the **Device Manager**:

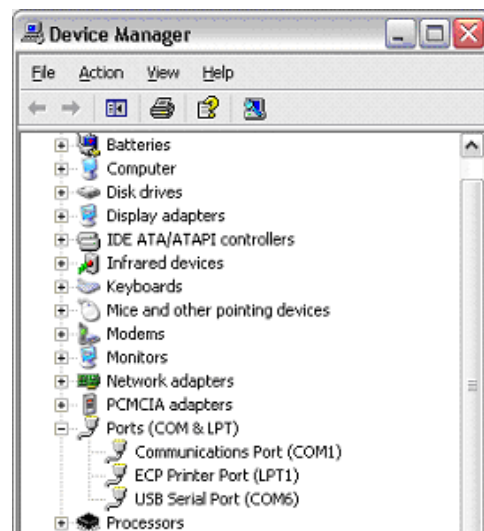
- On Windows 2000 and Windows XP, click on the **Hardware** tab of the **System Properties** dialog box. Then click on the **Device Manager** button.



- On Windows 98 SE and Windows ME, this is a tab named **Device Manager** on the **System Properties** dialog box.

d) On the **Device Manager** dialog box, look under the **Ports (COM & LPT)** tree.

The COM port associated with the USB-IR cable is listed there as **USB Serial Port (COM n)**.



4. Changing the COM Port #. Some programs require COM 1, COM 2, COM 3 or COM 4, and the USB-IR cable is sometimes installed as COM 5. To change the assigned COM port number, do the following:

a) Open the **Device Manager** by doing the following:

- On Windows 2000 and Windows XP, click on the **Hardware** tab of the **System Properties** dialog box. Then click on the **Device Manager** button.
- On Windows 98 SE and Windows ME, this is a tab named **Device Manager** on the **System Properties** dialog box.
- b) On the **Device Manager** dialog box, look under the **Ports (COM & LPT)** tree.
- c) Click on the **Port Settings** tab. Click on the **Advanced** button.
- d) On the bottom left side, pull down the bar and select **COM 1**, **COM 2**, **COM 3** or **COM 4**. NOTE: Choose one that does not say *in use* next to it. Click **OK**.
- e) Click **OK** again. Notice that the device will show up as being on the same COM port that it was before (i.e., COM 5), but will show up on the new port if you close the Device Manager and open it again.
- f) Close the **Device Manager**. Your serial device should work properly.

5. Uninstalling the Driver. When un-installing the driver from Windows, always use the **Add/Remove Programs** utility as this uses the driver uninstaller program to remove files and registry entries to leave a clean system. Other methods may leave fragments of the driver, which may interfere with future installations.

LabVIEW SignalExpress Step Installation

The Documentation Browser CD contains the National Instrument LabVIEW SignalExpress Tektronix Edition (TE) Step files for the Tektronix DMM4020, DMM4040, and DMM4050 products. You will install the appropriate Step into the LabVIEW Signal Express TE.

With this capability, you can control and acquire the data from the instrument. Unlike other Tektronix products which offer plug and play, the Tektronix DMM's require you to install and setup the software. Once installed, the instrument setup, acquisition and control will perform similar to other Tektronix products that are supported by the LabVIEW Signal Express TE software.

You can access the LabVIEW Signal Express TE online help for more information. To do so, select **Help** and **Getting Started with** in the SignalExpress TE environment.

System Requirements

To run the LabVIEW SignalExpress TE software, National Instruments (NI) recommends that your system meet the following requirements:

- 512 MB of memory
- Pentium 4 processor or equivalent (Pentium III or Celeron 600 MHz minimum)

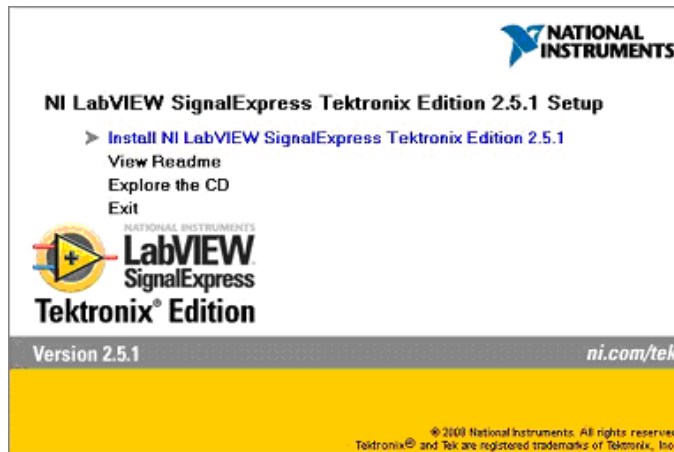
Installation Instructions

NI-VISA is automatically installed and is required for proper operation. If you have TekVISA software installed on your PC, you should be aware of the following:

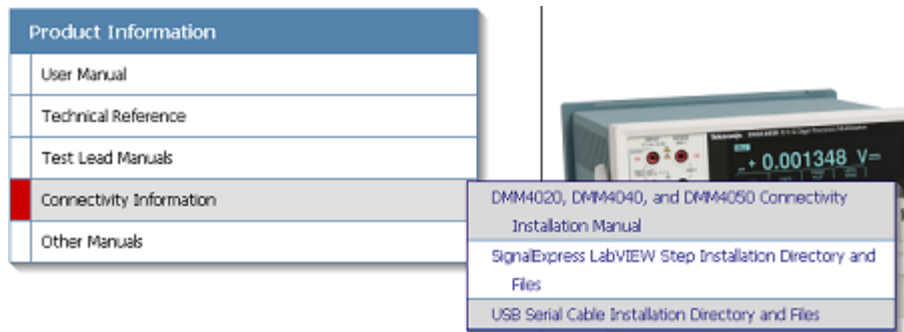
- Installing the LabVIEW SignalExpress TE software will replace the TekVISA visa32.dll with the NI-VISA. However, some TekVISA applications, such as TVC and Tek Toolbars, are not uninstalled and will continue to work.

Installation Procedure

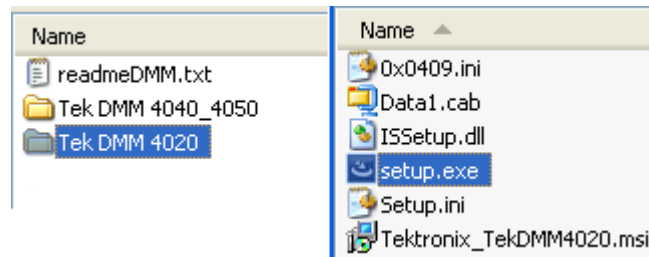
1. Install the NI LabVIEW SignalExpress TE software on your PC. This can be accomplished with the CD provided or web download from Tektronix.com. Note that this will take several minutes to install.



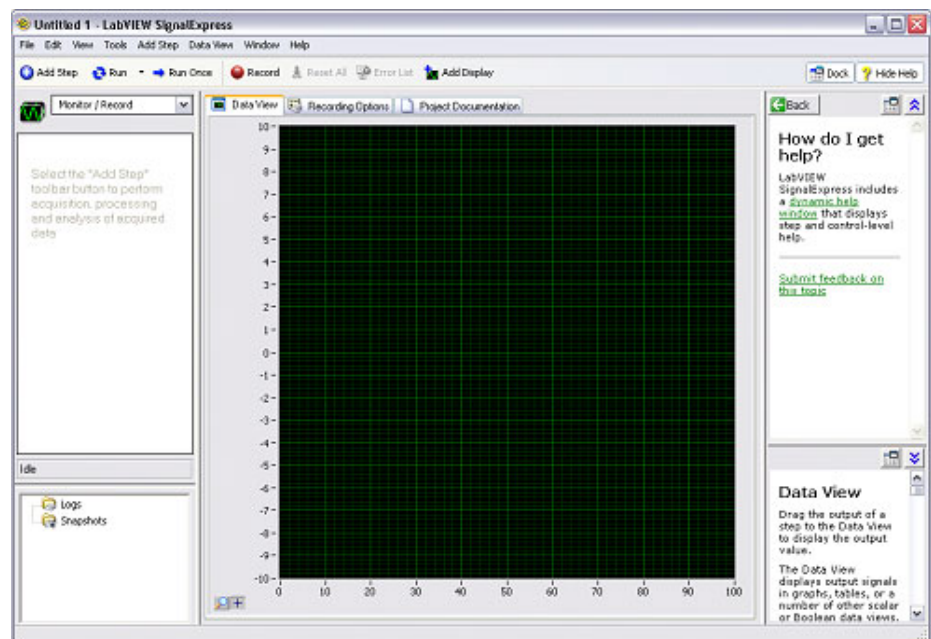
2. Insert into your PC, the documentation browser CD for your DMM. Proceed to the SignalExpress LabVIEW folder.



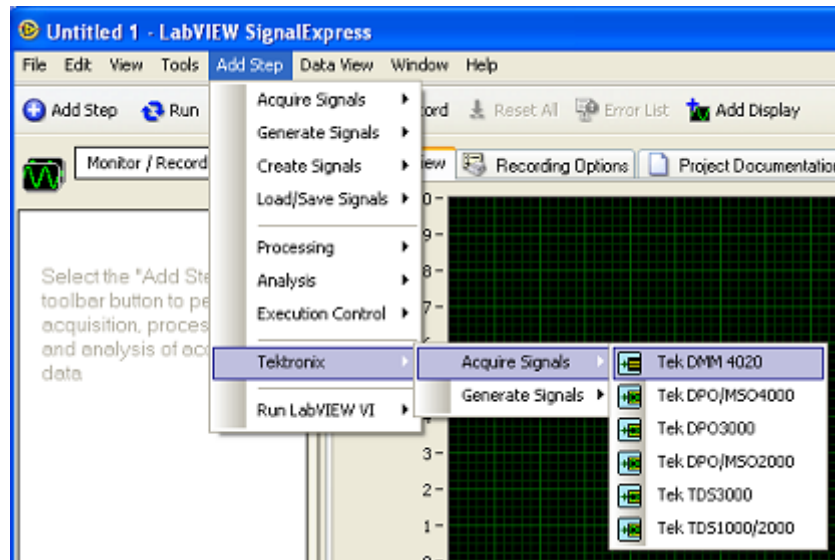
3. In the Signal Express directory folder, proceed to the sub-folder for your model DMM, and click on **Setup.exe**.



4. After installing the software, run the LabVIEW SignalExpress TE software. The PC displays the LabVIEW SignalExpress main menu.



5. In the LabVIEW SignalExpress main menu, click the **Add Step** menu item, select **Tektronix**, **Acquire Signals** and the menu item for your model of DMM.



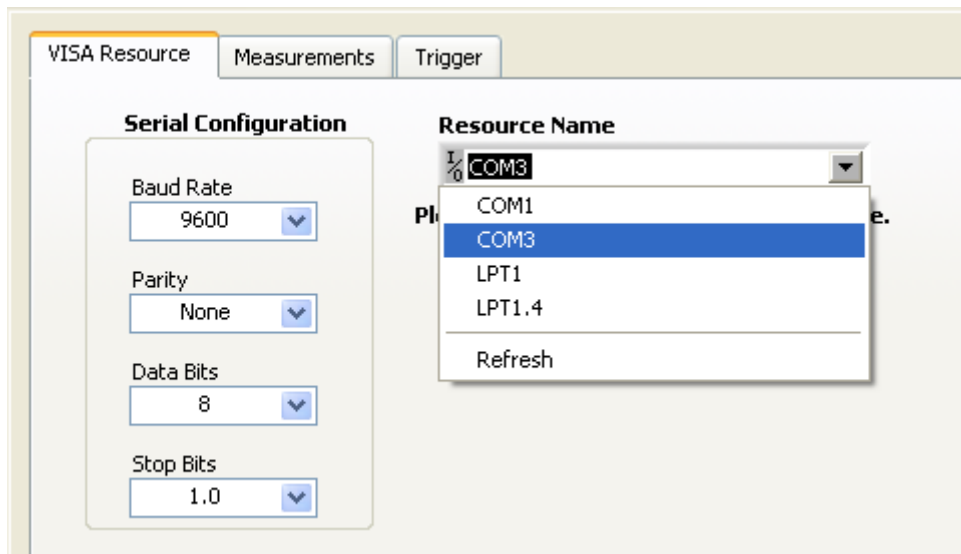
6. Connect the instrument to your PC, and install the hardware driver from the Documentation Browser CD or from the Internet, if you have not already done so. (See page 1, *USB-to-RS232 Serial Cable Installation*.)

NOTE. The DMM4040 and DMM4050 products have two modes of RS-232 operation: *TERMINAL* and *COMPUTER*. The *COMPUTER* mode is used when the DMM is operated by a computer program. Select *COMPUTER* for use with the LabVIEW SignalExpress TE software.

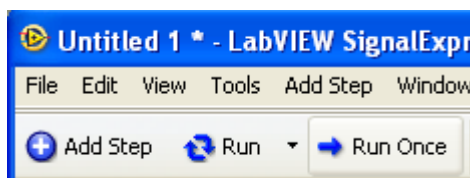
7. From the **Resource Name** drop-down list, select the COM# to match the initial setup of the USB-to-RS232 adapter. (See page 1, *USB-to-RS232 Serial Cable Installation*.) This allows you to control the instrument and acquire the data from the DMM.

Confirm that the settings on your DMM match those listed. Do this each time you connect your DMM. If there is a disconnect, adjust the settings as appropriate.

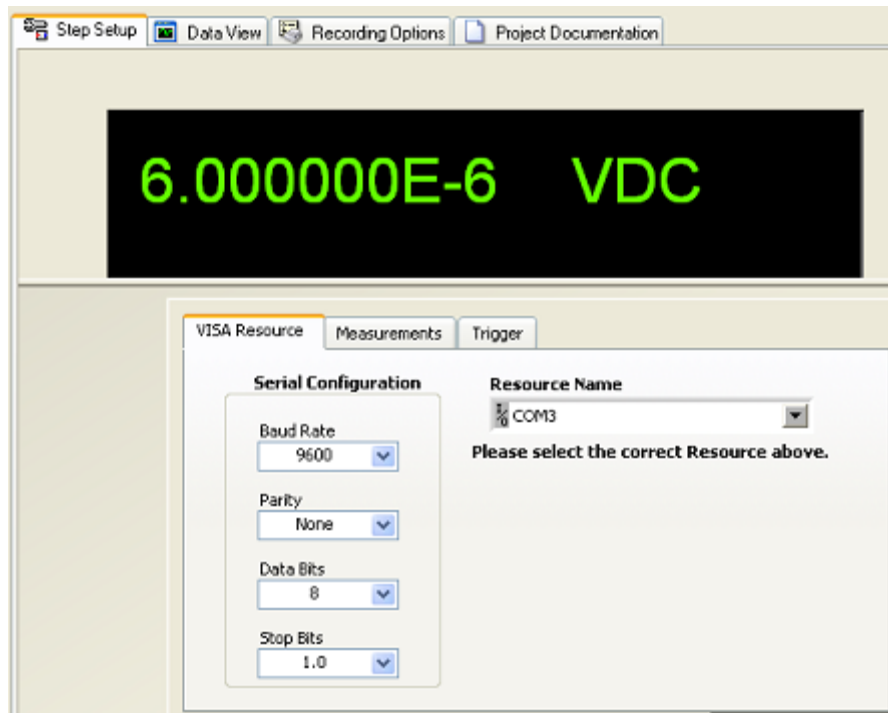
For the DMM4040 and DMM4050, verify that the end-of-line (EOL) setting is not CR. The default setting is CR+LF.



8. Select **Run Once** from the top menu to confirm data acquisition from the DMM.



9. Observe the acquired result on the LabVIEW screen.



NOTE. If the software does not run, recheck the setup in step 7. Also, as needed, refer to the online documentation that comes with LabVIEW SignalExpress Tektronix Edition, including the PDF manual “LabVIEW SignalExpress: Getting Started with LabVIEW SignalExpress”, the file titled “NI LabVIEW SignalExpress Tektronix Edition Readme”, and the online help. In addition, you can refer to the documentation that comes with your DMM.

This completes the LabVIEW Signal Express Tektronix Edition installation.