

Installation Guide



Installation Instructions for Models:

DI-720 Series

DI-722 Series

DI-730 Series

DI-785

DI-788

Revision D



DI-720, DI-722, DI-730, DI-785, and DI-788 Products Installation with WINDAQ® Acquisition and Playback Software

SYSTEM REQUIREMENTS

Hardware	Intel or compatible PC
Operating System	Windows XP, Vista (32- and 64-bit), or 7 (32- and 64-bit)*
Disk Space	40MB plus space for recorded data

*Printer Port products are not supported in Windows Vista or 7.

This installation guide explains how to install all DATAQ Instruments DI-720 Series, DI-722 Series, DI-730 Series, DI-785, and DI-788 products to your personal computer.

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Section A: Printer Port Instrument Installation

All DI-720, DI-722, and DI-730 Series instruments can use your computer's parallel printer port to interface digital and analog signals to your computer. Ethernet/USB models provide Ethernet/USB interface ports. These ports cannot be used concurrently with the printer port.

NOTE: These printer port instruments are not supported in Windows Vista.

1. Plug the appropriate end of the supplied parallel communications cable to the 25-pin male connector labeled **PRINTER PORT** on the rear panel of the instrument.
2. Connect the other end of this cable to your computer's parallel (printer) port. Note the LPT port number to which you connected your device (LPT1, LPT2, etc.).
3. Set up your computer's Printer Port operating mode. The parallel port may be set up in Standard, Bidirectional, or EPP mode to communicate with your instrument. Use the following chart to select the parallel port mode based on the desired sample rate:

Parallel Port Mode	Maximum Data Throughput*
Standard**	DI-720, DI-722, and DI-730: 40,000 samples/second
Bidirectional (PS/2)	DI-720 and DI-730: 80,000 samples/second DI-722: 50,000 samples/second
EPP	DI-720: 200,000 samples/second DI-722: 50,000 samples/second DI-730: 150,000 samples/second

*Maximum stream-to-disk rate using WINDAQ software on a 350 MHz Pentium II machine running Windows 98. Triggered storage rates will be faster. Contact DATAQ Instruments to determine expected maximum sample rates for your system.

**Standard mode not available on products with USB or Ethernet interfaces.

For example, if you will record five channels at 20 Hz each, then the Standard mode will be more than adequate (5 channels @ 20 Hz = 100 Hz throughput, which is well within the DI-7xx Series 40KHz standard mode throughput). If, however, you plan to record at a much higher sample rate (for example, five channels at 10KHz each) the Standard mode will not reliably record your data gap-free — this

throughput rate exceeds the DI-7xx's standard mode maximum throughput (5 channels @ 10KHz = 50KHz). To reliably record data gap-free at this sample rate, your computer's parallel port must be operated in something other than standard mode.

Access your computer's BIOS setup routine to change the printer port operating mode. Consult your computer documentation for BIOS setup information.

4. Apply power to the instrument and your computer. Windows must be running. Close all other applications.
5. Install WINDAQ Software. All software is included in the *WINDAQ Resource CD*. See *Section H: WINDAQ Software Installation*.

Section B: USB Instrument Installation

Your USB instrument may be installed and run as a Printer Port device if desired (see *Section A: Printer Port Instrument Installation*). The USB and Printer Port communications interfaces on a single instrument cannot be used at the same time.

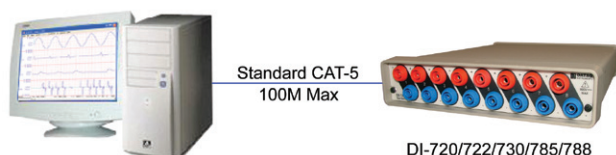
1. Disconnect all DATAQ Instruments USB devices from your PC before continuing with installation.



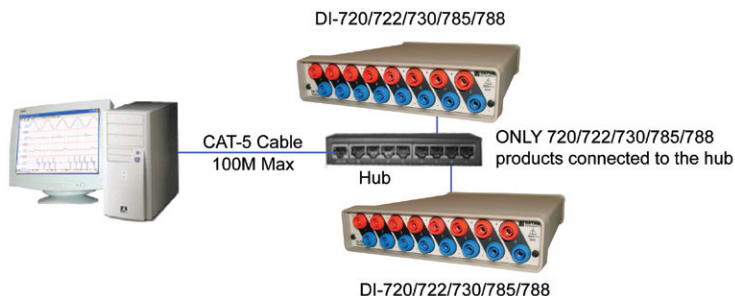
2. Install WINDAQ Software (see *Section H: WINDAQ Software Installation*).

Section C: Installing an Ethernet device directly connected to your PC or connected via a hub or switch where **ONLY** DI-720/722/730/785/788 products are installed

Installation of an Ethernet device directly connected to the network card on your computer requires you to change the IP address of your network card.



Installation of an Ethernet device via a hub/switch containing **ONLY** DI-720/722/730/785/788 products also requires you to change the IP address of your network card.



1. Find the **Network Connections** on your computer (usually in the Control Panel).
2. Double-click on the **Local Area Connection** icon.

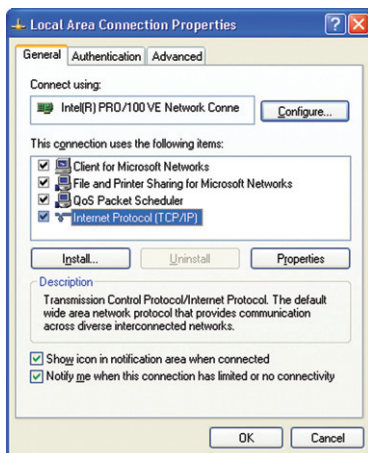


Local Area Connection
Connected, Firewalled
Intel(R) PRO/100 VE Network ...
(Windows XP)

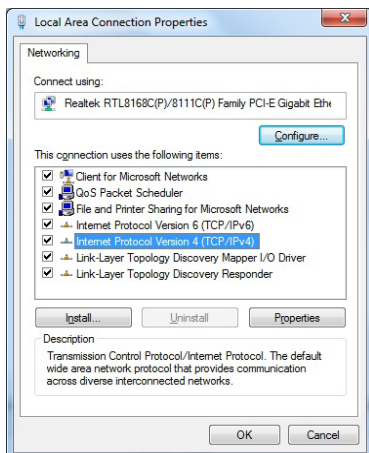


Local Area Connection
Network
Realtek RTL8168C(P)/8111C(P) Fa...
(Windows 7)

3. Click on the **Properties** button.
4. Select **Internet Protocol (TCP/IP)** (in Windows XP) or **Internet Protocol Version 4 (TCP/IPv4)** (in Windows 7) in the “This connection uses the following items” window and click on the **Properties** button.

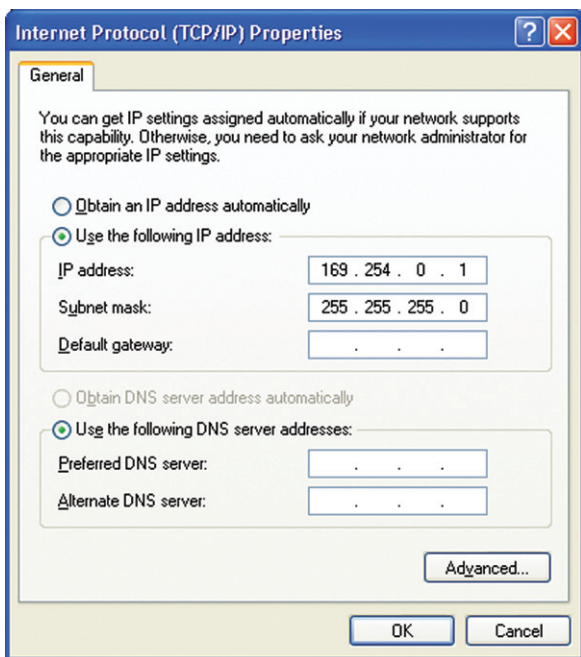


(Windows XP)



(Windows 7)

5. Click on the **General** tab.
6. Select the radio button **Use the following IP address**.
7. Enter 169.254.0.1 in the space provided for the **IP address**.
8. Enter 255.255.255.0 in the space provided for the **Subnet mask**.



9. Click on the **OK** button to close the *Internet Protocol (TCP/IP) Properties* dialog box then click on the **OK** button in the *Local Area Connection Properties* dialog box for the changes to take effect.

NOTE: If you unplug your device and connect your PC to a network or router you should change the TCP/IP properties back to their original state.

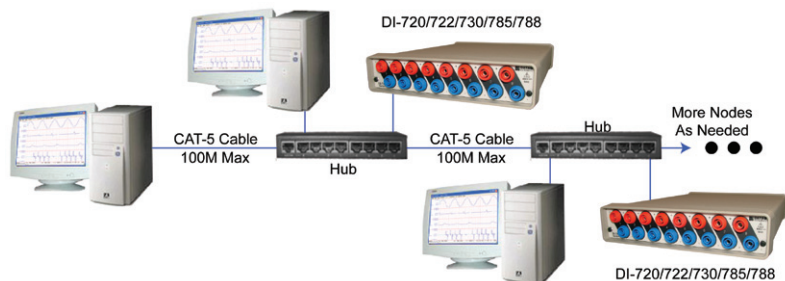
10. Install WINDAQ software (see *Section H: WINDAQ Software Installation*).
11. Run the TCP/IP Manager software (default location is *Start > Programs > WINDAQ > IP Manager*).
12. Connect and power the device (see *Section F: Connecting your*

Ethernet Device).

NOTE: Always start the TCP/IP Manager software BEFORE powering the device to avoid extended delays resolving IP addresses.

Section D: Installing an Ethernet device via a distributed network without a DHCP server where one or more DATAQ Instruments devices will coexist with other Ethernet devices, and where static IP address are individually assigned

Installation of an Ethernet device connected to a distributed network that does not have a DHCP server or where the DHCP server is turned off requires you to set a static IP to the device after installation to drastically reduce the amount of time it takes for the TCP/IP Manager to find the device.



NOTE: In the illustration above, the Hubs could instead be routers with DHCP turned off (i.e., a static IP assigned network). Contact your system administrator for details about your network.

1. Have the system administrator designate an IP address for your device.

2. Install WINDAQ software (see *Section H: WINDAQ Software Installation*) entering the device's MAC address at Step 15b.
3. Run the TCP/IP Manager software (default location is *Start > Programs > WINDAQ > IP Manager*).
4. Connect and power the device (see *Section F: Connecting your Ethernet Device*).
5. In the TCP/IP Manager main window, select the device you are installing.
6. Select the **Change IP Address** drop down command.
7. Select the **Set a static IP Address** radio button.

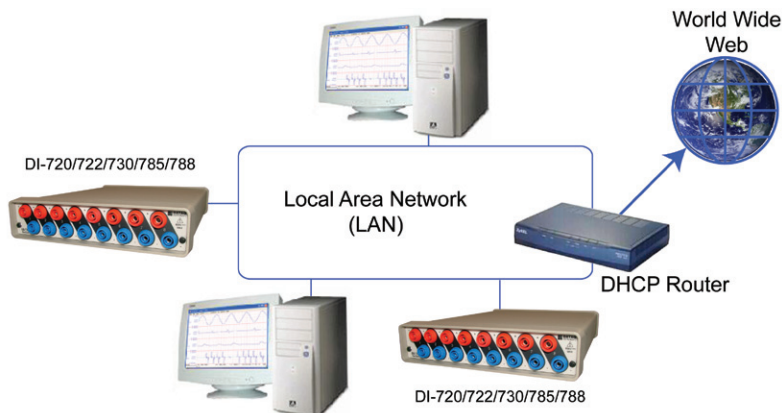


8. Enter the IP address given to you by your system administrator in Step 1 above.
9. Click on the **OK** button for the change to take effect.

NOTE: These instructions change the settings inside the device. If you move the device to a DHCP-enabled network (i.e., where IP addresses are assigned automatically by a DHCP server or router) you will need to change the device settings using the Dataq TCP/IP Manager. See the Dataq Instruments TCP/IP Manager help file for complete details.

Section E: Installing an Ethernet device via a distributed network with a DHCP server

Installation of an Ethernet device connected to a distributed network that has a DHCP server (i.e., a DHCP router automatically assigns IP addresses to each device connected to the network) requires no extra setup.



NOTE: If you are unsure whether your network is DHCP-enabled or not, check with your system administrator *before* installing WINDAQ.

1. Install WINDAQ software (see *Section H: WINDAQ Software Installation*).
2. Connect your Ethernet device to your Local Area Network (see *Section F: Connecting your Ethernet Device*).
3. Run the TCP/IP Manager software (default location is *Start > Programs > WINDAQ > IP Manager*).
4. Apply power to the device.

Section F: Connecting your Ethernet Device

Your DI-720/722/730 (the DI-785 and DI-788 do not have a Printer Port) Ethernet instrument may be installed and run as a Printer Port device if desired (see *Section A: Printer Port Instrument Installation*). The Ethernet and Printer Port communications interfaces on a single unit cannot be used at the same time. See *Section G: Installing Multiple Ethernet Devices in a Daisy Chain* if you are installing multiple units in a daisy chain.

1. Connect one end of a CAT-5 Ethernet cable to the **Toward PC** port on the rear of the instrument.
2. Connect the other end of the CAT-5 Ethernet cable to an Ethernet port on your PC or to a port on an accessible network.
3. Install WINDAQ software (see *Section H: WINDAQ Software Installation*) and run the TCP/IP Manager (default location is *Start > Programs > WINDAQ > IP Manager*) before applying power to the device.

NOTE: DO NOT connect the **Expansion** port back to your network or PC. These Ethernet products use an Ethernet switch. Looping any Ethernet switch will crash your network or PC.

Section G: Installing Multiple Ethernet Devices in a Daisy Chain

Daisy-chain multiple Ethernet instruments to create one synchronous distributed data acquisition system. Multiple DI-720/722/730 instruments may be placed in the same chain. To maintain synchronicity, Ethernet hubs and switches cannot be used between units. Daisy-chains must be installed to your PC or LAN — you cannot access more than one device per IP address outside of your subnet. If you are not sure whether or not the instruments are in your subnet see your system administrator before installation. You may acquire data from only one daisy chain at a time.

NOTE: Installing and running other units on the same subnet as a daisy-chained group of instruments will disrupt synchronicity.

1. Connect one end of a CAT-5 Ethernet cable to the **Toward PC** port of the first Ethernet instrument.
2. Connect the other end of the same CAT-5 Ethernet cable to an Ethernet port on your PC or LAN.
3. Connect one end of another CAT-5 Ethernet Cable to the **Expansion** port on the rear of the first Ethernet instrument.
4. Connect the other end of the same CAT-5 Ethernet cable to the **Toward PC** port on the second Ethernet instrument.
5. Continue installing your Ethernet instruments by connecting a CAT-5 Ethernet cable to the **Expansion** port of the last instrument in the chain and the **Toward PC** port on the next instrument in the chain. Install up to 32 devices in a chain, each up to 100 meters apart.

NOTE: DO NOT connect the Expansion port on the last device in the chain back to your network or PC. These Ethernet products use an Ethernet switch. Looping any Ethernet switch will crash your network or PC.

6. Install WINDAQ Software (see *Section H: WINDAQ Software Installation*). You must enter **EACH** instrument's MAC address during software installation.

Section H: WINDAQ Software Installation

All software is included in the *WINDAQ Resource CD*.

1. Insert the *WINDAQ Resource CD* into your CD-ROM drive. The Windows auto run feature should start the installation program. If the Windows auto run feature is not enabled on your PC, run the *setup.exe* program located on the root of the CD directory.
2. In the “What do you want to do?” dialog box select the *Install Software* radio button and click **OK**.
3. In the “Installing Software” dialog box select the *Install Software for all other products* radio button and click **OK**.
4. In the “Specify the product” dialog box you must choose the version of WINDAQ you would like to install. If you purchased WINDAQ/Pro or Pro+ software, select the appropriate option and click **OK**. The installation software will require a password to continue. If you did not purchase software, choose the WINDAQ/Lite option and click **OK**.
5. In the “Specify the Instrument” dialog box select the *DI-720/740/730HV Portable Instruments* radio button for all DI-720/722/730 products or the *DI-785/788 Desktop Instruments* radio button for all DI-785 and DI-788 products and click **OK**.
6. **DI-720/722/730 Instruments:** In the “Specify the Instrument” dialog box select the appropriate communications connection and click **OK**.
DI-785 and DI-788 Instruments: In the “Select a Device” dialog box select the **DI-785/788 ENB** radio button and click **OK**.
7. **DI-720/730 Ethernet Instruments Only:** Check the sticker located on the bottom of your instrument and note the model number. In the “Select a device” dialog select the model number of your device and click **OK**.
8. Read the warning information (if present) and follow any instructions relevant to your situation in the “Welcome” dialog box. Click **OK** to continue the installation.
9. Read through the Software License agreement carefully and either **Accept and Continue** to continue or **Cancel** to exit the installation.

10. Enter your Registration Information in the appropriate text boxes and click **OK**.
11. Select the destination directory where you would like all folders and files to reside on your hard drive. We recommend you accept the default path, but you can name this new directory anything you like. Simply substitute the desired drive and directory in the Destination Directory text box. Once you have chosen the directory click **OK**.
12. If you are installing a USB device you will be prompted to disconnect your USB device(s). Please disconnect all DATAQ Instruments USB devices before continuing with installation.
13. The “Make Backups?” dialog box provides the option of creating backup copies of any files that may be replaced during installation. This is a safety courtesy; backup copies are not required. Click on **No** if you don’t want to make backups. Click on **Yes** to create backups. If you decide to create backups, you will be prompted to specify a backup file directory.
14. If you are installing a **Printer Port Instrument**:
 - a. Specify the instrument you are installing. If you are installing a DI-720 or DI-722 select the *DI-720/DI-740/ DI-722/DI-500I Portable Unit* radio button. If you are installing a DI-730 select the *DI-730HV Portable Unit* radio button. Click **OK** to continue.
 - b. Choose the Printer Port you connected your instrument to (LPT1, LPT2, or LPT3). Click **OK** to continue.
 - c. Select the program manager group you would like to place the program shortcuts in your Windows programs. The default is recommended, but you can specify any program group or create a new one. Click **OK** to continue.
 - d. Drivers are now installed and you can now connect and power your USB instrument if desired.
 - e. The “Installation Option” dialog box allows you to specify access to WINDAQ for multiple users on the same PC. If you are the only user or you would like to allow access to all users click **Yes**. If there are multiple users and you would like to be the only one able

to access WINDAQ click **No**. Click **Cancel** to abort the installation.

- f. Select the desired options for installation of WINDAQ/XL and Advanced CODAS.
 - g. Installation is complete. Re-start your PC to enable WINDAQ device drivers for the printer port.
 - h. Run WINDAQ software from the program group designated in Step 13a above (default is *Start > Programs > WINDAQ > WinDaq Pro(version of the software installed - Lite/Pro/Pro+) Data Acq DI-7xx(model number) LPT*). For help running WINDAQ Acquisition and Playback software please see the help files inside the application (F1 for context-sensitive help or use the Help menu).
14. If you are installing a **USB Instrument**:
- a. Select the Program Manager Group you would like to place the program shortcuts in your Windows programs. The default is recommended, but you can specify any program group or create a new one. Click **OK** to continue.
 - b. Enter the ID address of your instrument. Every DI-720-USB, DI-722-USB or DI-730-USB is initially assigned an ID address of 0. If you are adding only one DI-720-USB, DI-722-USB or DI-730-USB to your system or if this is the first USB instrument you are installing, do not change the ID address. If this is not the first DI-720, DI-722 or DI-730 USB device, change the ID address. The second device installed should have an ID address of 1, the third device installed should have an ID address of 2, etc. Click **OK** to continue installation.

NOTE: You must download and run the SetUSBID Program to change the USB ID address of your device. Follow the instructions at <http://www.dataq.com/misc/bnm/>.

- c. The “Installation Option” dialog box allows you to specify access to WINDAQ for multiple users on the same PC. If you are the only user or you would like to allow access to all users click **Yes**. If there are multiple users and you would like to be the only one able

to access WINDAQ click **No**. Click **Cancel** to abort the installation.

- d. Select the desired options for installation of WINDAQ/XL and Advanced CODAS.
- e. Installation is complete. You can connect and power your USB device now. If you are installing multiple devices, run through the installation for each device making sure to change the ID address in step 14b above. This does not install multiple versions of the software.
- f. Run WINDAQ software from the program group designated in Step 14a above (default is *Start > Programs > WINDAQ > WinDaq Pro(version of the software installed - Lite/Pro/Pro+) Data Acq DI-7xx(model number) USBx(ID address - usually 0)*). For help running WINDAQ Acquisition and Playback software please see the help files inside the application (F1 for context-sensitive help or use the Help menu).

15. If you are installing an **Ethernet Instrument**:

- a. Select the Program Manager Group you would like to place the program shortcuts in your Windows programs. The default is recommended, but you can specify any program group or create a new one. Click **OK** to continue.
- b. You must know either the MAC address or the IP address of the device to continue. The MAC address is located on the sticker on the bottom of your device. IP addresses must be retrieved from the system administrator. Enter the MAC address or IP address in the text box provided in the “MAC or IP address of the device” dialog box. If you are installing a device that is not connected to your Local Area Network, the system administrator must forward the instrument through port 2501. Then, if you enter the IP address of the network where the instrument resides, the software will retrieve the MAC address for you. This will save further setup in the TCP/IP Manager. Click **OK** to continue. See the TCP/IP Manager help files for more information.

NOTE: If you enter the wrong MAC address you will have to re-run this installation program with the correct MAC address to access the device.

- c. Click **Yes** in the “More Ethernet devices to install” dialog box if you are installing multiple Ethernet instruments.
- d. Repeat Steps b and c until all Ethernet instruments’ MAC addresses or IP addresses have been entered. Click **No** to continue installation.
- e. The “Installation Option” dialog box allows you to specify access to WINDAQ for multiple users on the same PC. If you are the only user or you would like to allow access to all users click **Yes**. If there are multiple users and you would like to be the only one able to access WINDAQ click **No**. Click **Cancel** to abort the installation.
- f. Select the desired options for installation of WINDAQ/XL and Advanced CODAS.
- g. Installation is complete.
- h. Run the TCP/IP Manager via the Windows program group specified in step 15a above (default is *Start > Programs > WINDAQ > IP Manager*) to access the device and run WINDAQ Acquisition Software. Use the WINDAQ Waveform Navigator program to playback synchronized data files. For help running the TCP/IP Manager, WINDAQ Waveform Navigator, or WINDAQ Acquisition and Playback software please see the help files inside the application (F1 for context-sensitive help or use the Help menu).

Section I: Documentation and Support

Full Hardware documentation is available from the Windows Program Group designated during installation (default is *Start > Programs > WINDAQ > Documentation > DI-xxx Hardware Manual*).

A Fast Start guide with multimedia demonstrations is available after installation from the Windows Program Group designated during installation (default is *Start > Programs > WINDAQ > Documentation > Multimedia Fast Start Guide to WinDaq Software*).

Context-sensitive Help is available in all software programs. Highlight a menu item and press **F1** for help regarding that menu item.

Support Forum: <http://support.dataq.com>

E-mail: support@dataq.com

Phone: 330-668-1444 Monday through Friday 8AM to 5PM EST



DATAQ Instruments, Inc.
241 Springside Drive
Akron, Ohio 44333 U.S.A.
Telephone: 330-668-1444
Fax: 330-666-5434

www.dataq.com

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