ICS-6000 Tablet Installation Instructions

This is an excerpt from the *Dionex ICS-6000 Installation manual*

3.9 Installing the Tablet

This section contains instructions for attaching the tablet to the DC. The procedure requires parts from two kits:

- The Tablet Kit (P/N 22181-62020) contains the tablet and its power supply. When the tablet is purchased from Thermo Fisher Scientific, the ICS-6000 App is installed on the tablet at the factory and a predefined user account is created.
- The Tablet Arm/Holder Kit (P/N 22181-62016) contains the parts required to attach the arm and holder assembly to the DC.

Installation of a Third-Party Tablet

When the tablet is purchased separately from the Dionex ICS-6000, you are responsible for making sure the tablet meets current specifications (see Table 3-3).

NOTE If you do not purchase the tablet from Thermo Fisher Scientific, you must also install the ICS-6000 App (see Section 3.11.1) and manually pair the tablet and instrument PC (see Section 3.12.2).

Specification	Requirement
Screen	10-inch or 12-inch screen with multi-touch technology
Screen Resolution (Minimum)	1920 x 1080 pixels
Operating System	Microsoft Windows 10 Pro
Processor	Intel® Core™ m3 (recommended), i5, i7, or equivalent
Memory (RAM)	4 GB
Internal Storage	128 GB SSD
Ports	USB 2.0 or better, Wi-Fi 802.11 ac, Ethernet or Ethernet via USB

Table 3-3. *Tablet Specifications*

3.9.1 Getting Started

1. Unpack the Tablet Kit (P/N 22181-62020). The kit contains the tablet and tablet power supply (P/N HAZMAT-01-00136), as well as setup instructions from the tablet vendor. (You can disregard the vendor instructions.)
2. Unpack the Tablet Arm/Holder Kit (P/N 22181-62016). The kit contains all the parts needed to attach the tablet arm to the DC (see Figure 3-26).

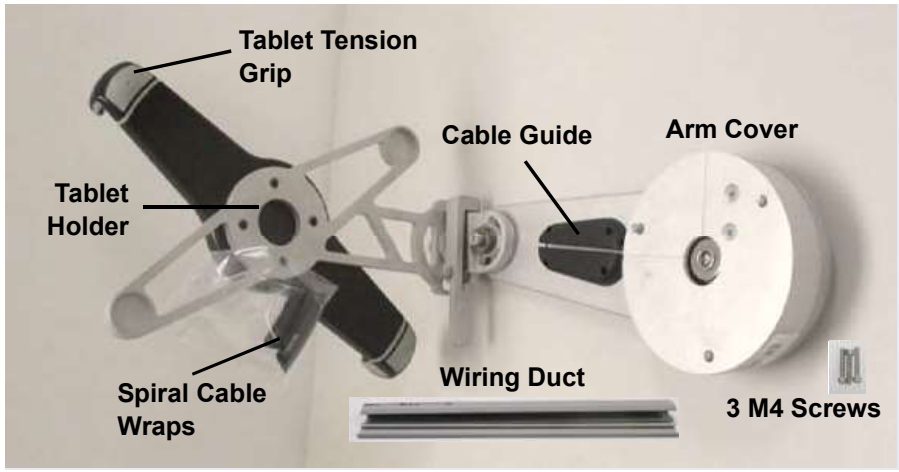


Figure 3-26. *Tablet Arm/Holder Kit Contents Unpacked*

3. The mounting arm cover (P/N 22181-60500) is held in place by magnets. Pull the cover off the mounting arm (see Figure 3-27) and set it aside. (You will reinstall the cover later.)

Figure 3-27. *Removal of the Mounting Arm Cover*

3.9.2 Installing the Tablet Arm/Holder

1. Attach the mounting arm (P/N 22181-60500) to the left side of the DC:

   a. Note the two lines molded into the base of the tablet mounting arm, on the inside of the arm (the side of the arm which is installed against the DC). When installing the mounting arm, make sure the line to the left of the two fasteners (see Figure 3-28) is in the vertical position.

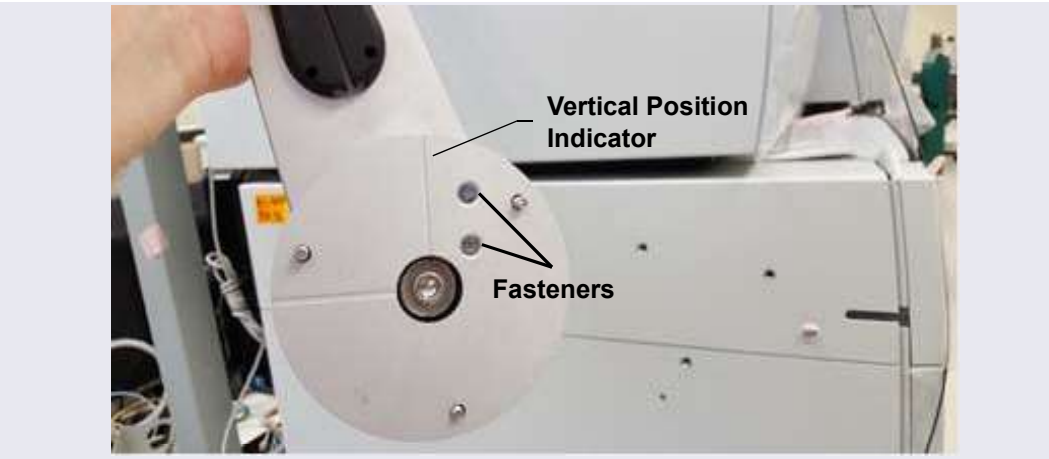


Figure 3-28. *Position Indicator on the Tablet Mounting Arm/Holder*

   b. Align the three mounting screws on the base of the mounting arm with the three mounting holes on the side of the DC (see Figure 3-29).

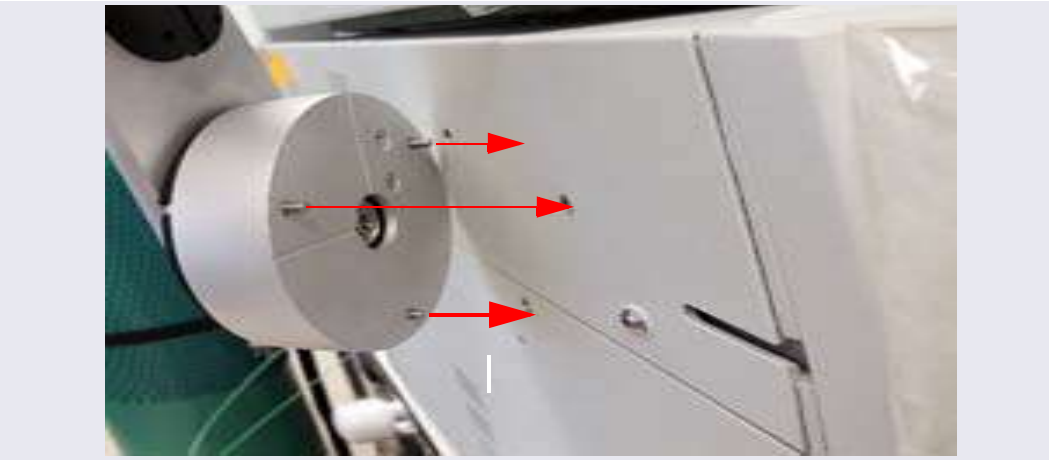


Figure 3-29. *Tablet Arm/Holder Mounting Screws on the DC*

c. Use a 3 mm socket driver to tighten the screws from the front of the mounting arm (see Figure 3-30). You will need to move the arm to access all three screws.

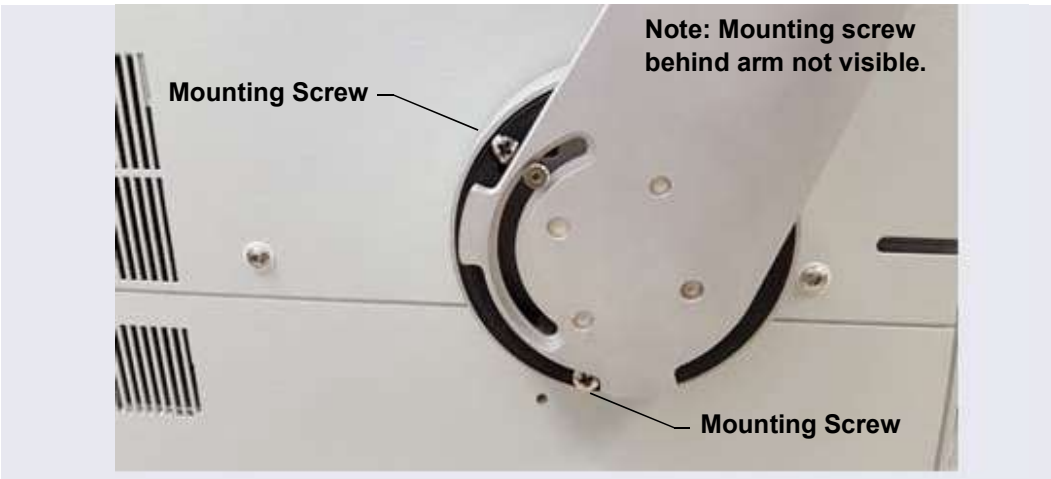


Figure 3-30. *Tightening the Tablet Arm Mounting Screws*

2. Reattach the mounting arm cover by aligning it with the arm and moving it toward the arm until the magnets "grab" (see Figure 3-31).

Figure 3-31. *Reattaching the Cover of the Tablet Mounting Arm/Holder*

3.9.3 Routing the Tablet Power and Ethernet Cables

This section explains how to perform a partial installation of the tablet power cable and (if required) the Ethernet cable. The connections will be completed later in the network installation procedure.

1. Connect the tablet power cable (with the round power connector attached) to the power port on the tablet.

   NOTE The tablet is shipped with an AC power cable with a U.S. NEMA plug. You are responsible for obtaining a locally sourced plug adapter.

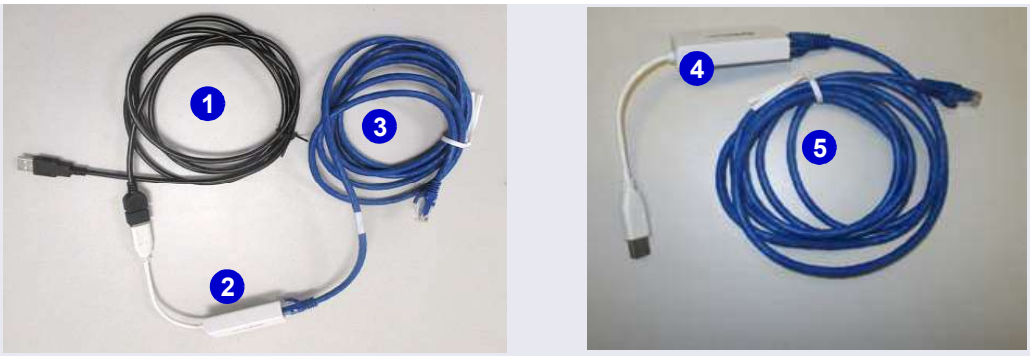
   NOTE If a wireless tablet connection will be used, the Ethernet cable and network adapter are not needed. The power adapter for the tablet still must reach the tablet in any chosen tablet arm orientation.

2. Assemble the cable(s) required to connect the tablet USB port to the network adapter (see Figure 3-32). The parts are provided in the Tablet Connectivity Kit (P/N 22181-62017).

   a. Connect the 2 m (7 ft) Ethernet cable (P/N 00302-99-00129) to the USB network adapter (P/N 00302-99-00131).

   b. If the Ethernet cable is not long enough, connect the USB cable (male-to-female) (P/N 00302-99-00130) to the adapter.

NOTE Set the rest of the kit contents aside for use later.



1 Ethernet Cable
2 USB-to-Network Adapter
3 Ethernet Cable
4 Ethernet Cable
5 USB-to-Network Adapter

Figure 3-32. *Tablet Cable Options*

3. Working from the mounting arm backward, route the tablet power and Ethernet cables from the tablet holder.
4. Check that the power cable can reach the tablet in any desired orientation, and then secure the power cable with the spiral cable wraps. If the setup includes an Ethernet cable, it should be routed similarly.
5. Route the network connector (a USB cable that is either attached to the network adapter or part of the network adapter) as follows (see Figure 3-33):
   a. Route the cable from the top of the tablet holder downward (leaving about 254 mm (10 in) of cable beyond the top of the tablet holder), over the arm of the tablet holder, and toward the DC.
   b. Secure the cable with the spiral wraps on the upper and lower sections of the tablet holder arm.
6. Route the tablet power cable as follows (see Figure 3-33):
   a. Route the power cable from the top of the tablet holder downward (leaving about 254 mm (10 in) of cable beyond the top of the tablet holder), over the arm of the tablet holder, and toward the DC.

b. Secure the cable with the spiral wraps on the upper and lower sections of the tablet holder arm.

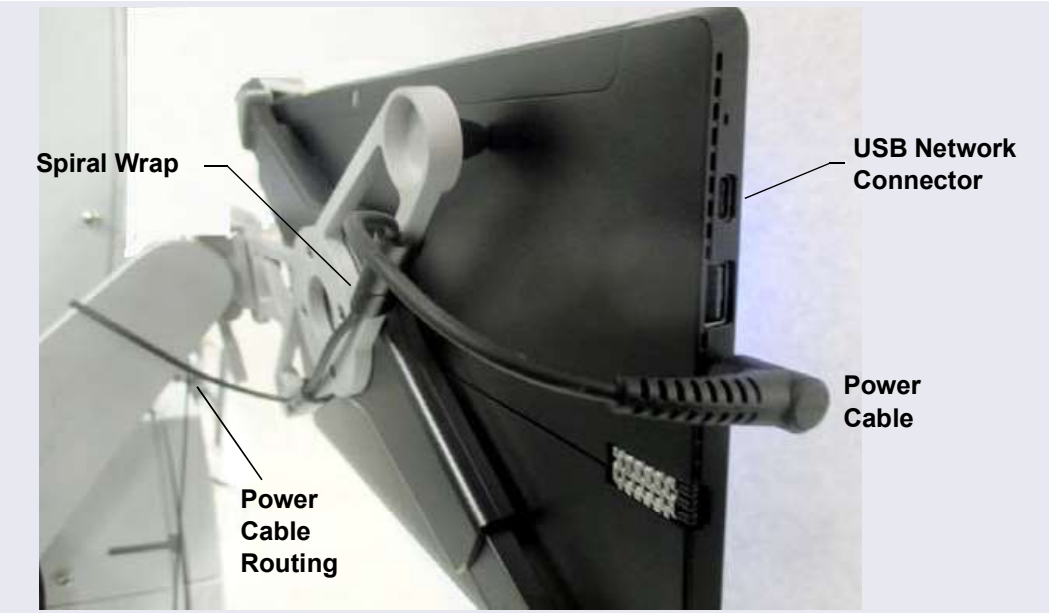


Figure 3-33. *Tablet Power Cable Setup*

7. Route both the Ethernet and tablet power cables through the tablet arm cable guide (see Figure 3-34) and back toward the tablet holder.

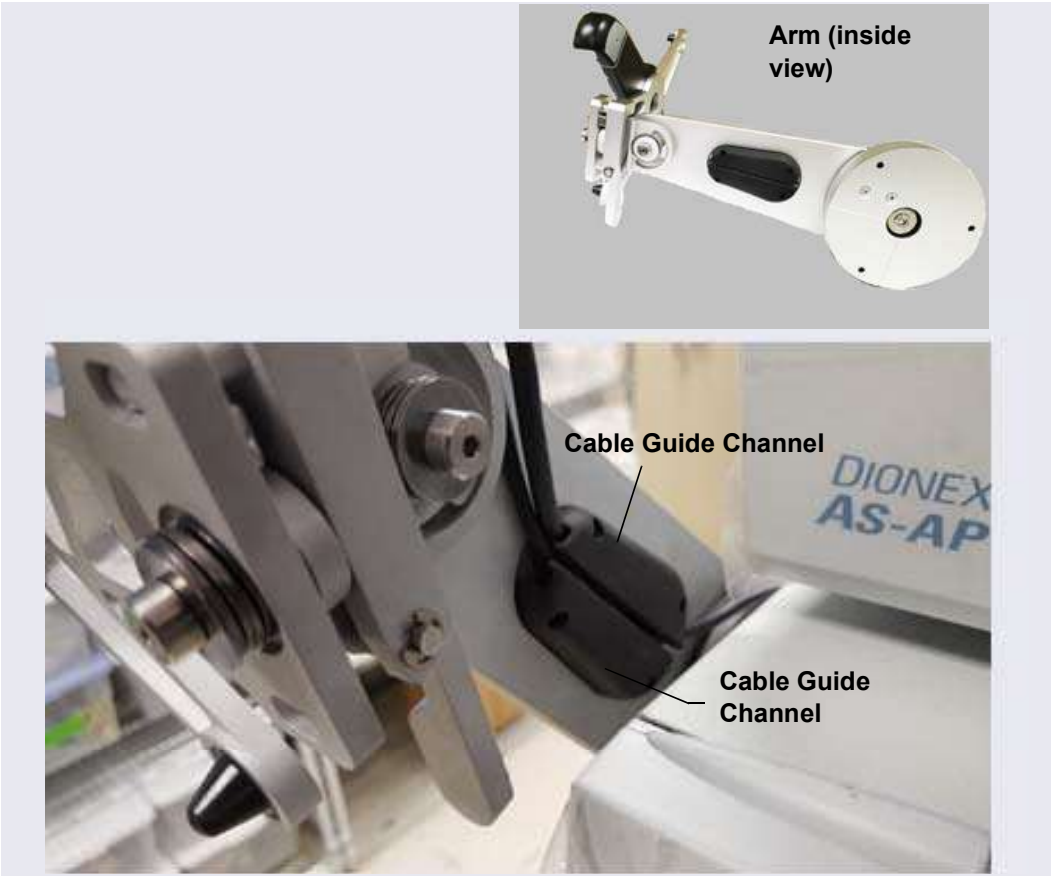


Figure 3-34. *Mounting Arm Cable Guide*

8. Route the cable from the cable guide, down and under the tablet arm, and toward the rear of the DC.
9. Use the wiring duct (P/N 22181-98020) provided in the Tablet Arm/Holder Kit (P/N 22181-62016) to organize the cable run across the side of the DC (see Figure 3-35):
   a. Slide the plastic cover off the wiring duct (or flex the duct).

b. Remove the paper backing from the adhesive strip and press the base of the wiring duct firmly onto the side of the DC. Route the cables through the duct cover and attach it to the base (see Figure 3-35).

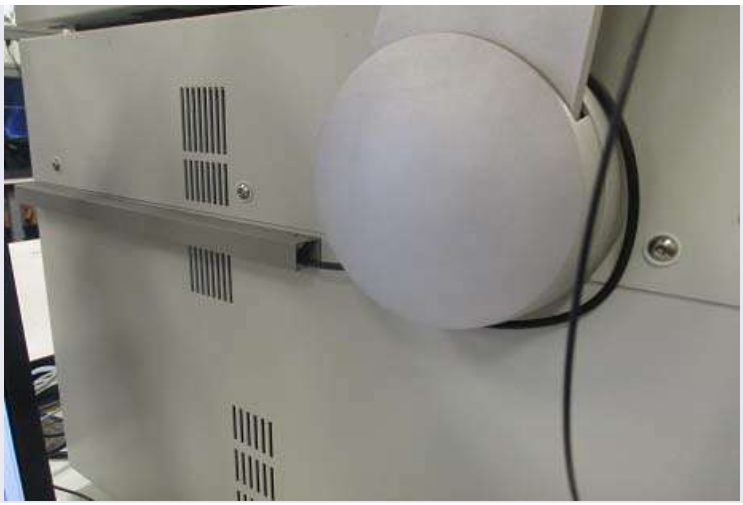


Figure 3-35. *Tablet Wiring Duct Attached to the DC*

3.9.4 Positioning the Tablet

1. Decide whether to locate the tablet in front of the DC or to the left of the module.
2. Pull the tablet holder release lever (see Figure 3-36) toward yourself and swivel the holder to move the tablet to the preferred location.

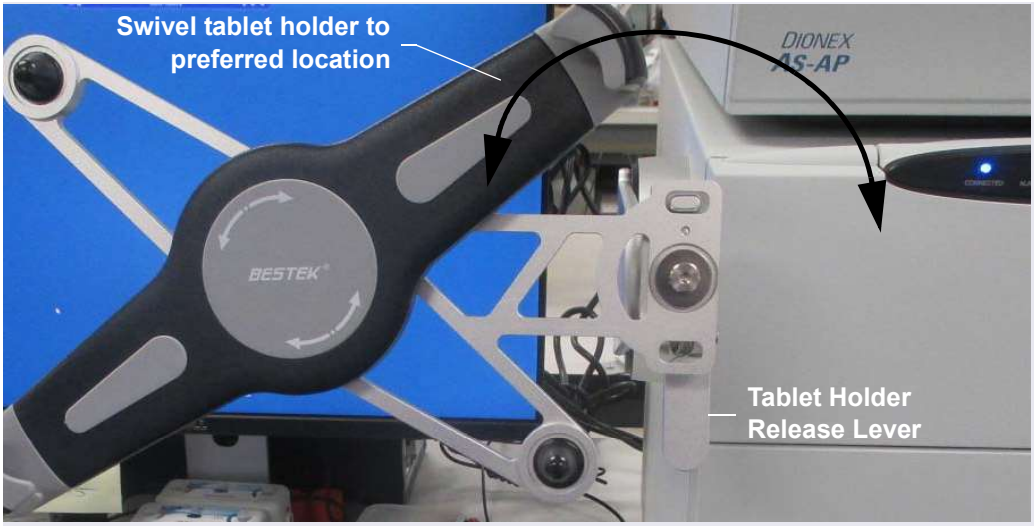


Figure 3-36. *Tablet Connection and Viewing Adjustment*

3. You can now attach the tablet to the tablet holder. Figure 3-37 shows an example installation. If the setup includes an Ethernet cable, the routing for the cable would be the same as the power cable in the photo.

Figure 3-37. *Tablet Connections and Viewing Adjustment*

4. Place the lower-left corner of the tablet into the tablet arm/holder (see Figure 3-38). Pull up the upper-right corner of the tablet and release it to hold the tablet in place.

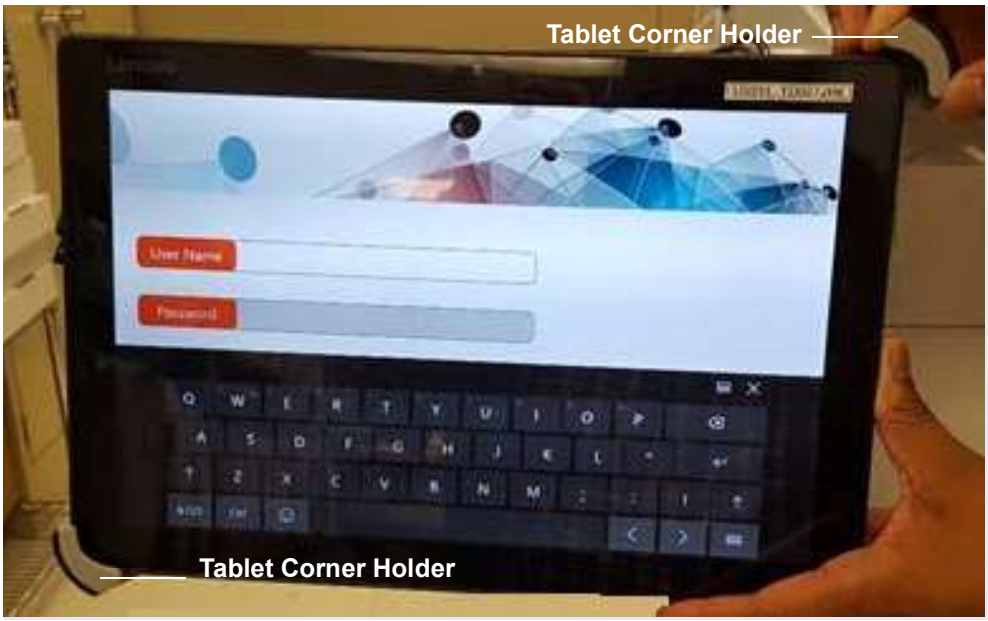


Figure 3-38. *Inserting the Tablet into the Holder*

5. Adjust the cables to allow enough slack for all the tilt and rotation positions.
6. While holding down the release lever, use the two hex screws on the tablet holder to adjust the tablet until it is level (see Figure 3-40).
   - When the tablet is to the left of the DC, turning the top screw counterclockwise loosens the tablet and rotates it in the clockwise direction.
   - When the tablet is in front of the DC, turning the bottom screw clockwise tightens the tablet and rotates it in the counterclockwise direction.
7. When you finish, release the lever to lock the tablet into place.

3.10 Installing a Network for Tablet Access

Configuration options for networking of the Chromeleon instrument PC (IPC) and the tablet include:

- Ethernet (cabled) connection to IPC (see Section 3.10.2) and Ethernet (cabled) connection to tablet (see Section 3.10.3)
- Ethernet (cabled) connection from IPC to router (see Section 3.10.2) and wireless connection from router to tablet (see Section 3.10.4)
- Installations that include a local area network (LAN) in addition to the IPC and tablet may be possible, but are outside the scope of this manual. For assistance, contact your network system administrator.

Notes on Network Configurations

- Before selecting a network configuration, verify that corporate IT policy does not prohibit wireless connections.
- The Tablet Connectivity Kit (P/N 22181-62017) provides a router that is compatible with Ethernet and wireless connections, cables, and other parts required for communication (see Section 3.10.1).
- The adapter provided in the Tablet Connectivity Kit does not provide wireless capability. The adapter changes the connector from Ethernet to USB; this enables a connection to a USB port if a LAN port is not available.

PC and Tablet Communication Test

Test network communication at the following times:

- After completing installation of the router, tablet, and IPC.
- Whenever you want to verify that the network is working and that the tablet and IPC are on the same network.
- Whenever a communication error is suspected.

1. On the tablet desktop, tap the Windows start bar.

NOTE If the tablet was not purchased from Thermo Fisher Scientific, you must install the ICS-6000 App (see Section 3.11.1) before testing communication.

2. Tap the search bar and enter “CMD.” A command prompt window is displayed.
3. Type “ping 192.168.0.1.” This command pings the PC. If the test is successful, a response appears on the screen showing the number of packets successfully transferred.
4. To check tablet IP repeat the previous step; this time, use the PC CMD prompt to ping the tablet IP address (192.168.0.1).

Figure 3-39 provides an overview of connections for both the wireless and Ethernet networks.

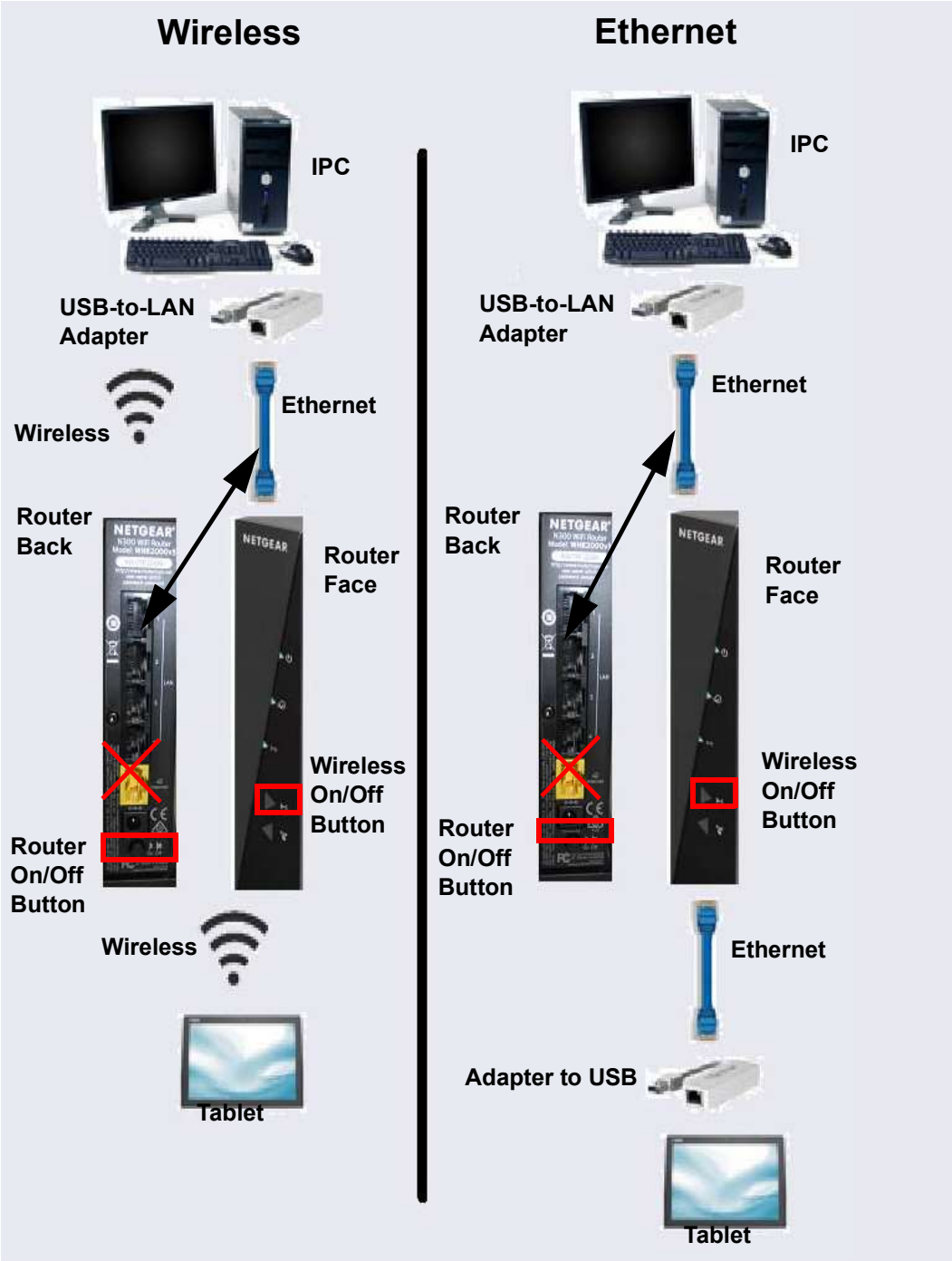


Figure 3-39. *Network Connections: Tablet to IPC*

Unpacking the Tablet Connectivity Kit

Unpack the Tablet Connectivity Kit (P/N 22181-62017) and verify the kit contents (see Figure 3-40).

Reminder: The following items may have been removed from the kit in order to install the tablet arm and tablet (see Section 3.9.3): one of the two network USB-to-Ethernet adapters, one of the two Ethernet cables, and the USB cable.

1. **Wireless Router (P/N 00825-01-00269)**
2. **USB Cable (Male-to-Female) (P/N 00302-99-00130)**
3. **USB-to-Network Adapter (2) (P/N 00302-99-00131)**
4. **Ethernet Cable (2) (P/N 00302-99-00129)**
5. **Power Adapter (P/N 00825-01-00269)**

Figure 3-40. *Tablet Connectivity Kit Items Unpacked*

3.10.1 Installing the Router

The router should be installed as close as possible to the DC and IPC because of the limited Ethernet cable length and wireless broadcast range.

1. Unpack the router (P/N 00825-01-00269) and the router power adapter (P/N 00825-01-00269).

   NOTE The router is shipped with an AC power cable with a U.S. NEMA plug. You are responsible for obtaining a locally sourced plug adapter.

2. Each router is assigned a unique network SSID (service set identifier) and password at the factory. The SSID and password are printed on a label on the base of the router. Write down this information before proceeding.
3. Connect the outlet prongs of the router power adapter to an electrical outlet near the Dionex ICS-6000 to which the tablet is attached. If the tablet arm is not attached, see Section 3.9.2.
4. Attach the connector end of the power adapter to the router.

   NOTE If the electrical service is not 120 V 60 Hz, an AC plug adapter (not provided with the system) is required to plug in the router power adapter.

5. Press the **ON/OFF** button on the rear of the router (near the bottom) to turn on the power.
6. Check the status of the wireless on light on the router (see Figure 3-41). The light should be green for operation in wireless mode, and red

otherwise. If necessary, push the wireless on/off button to change the mode.

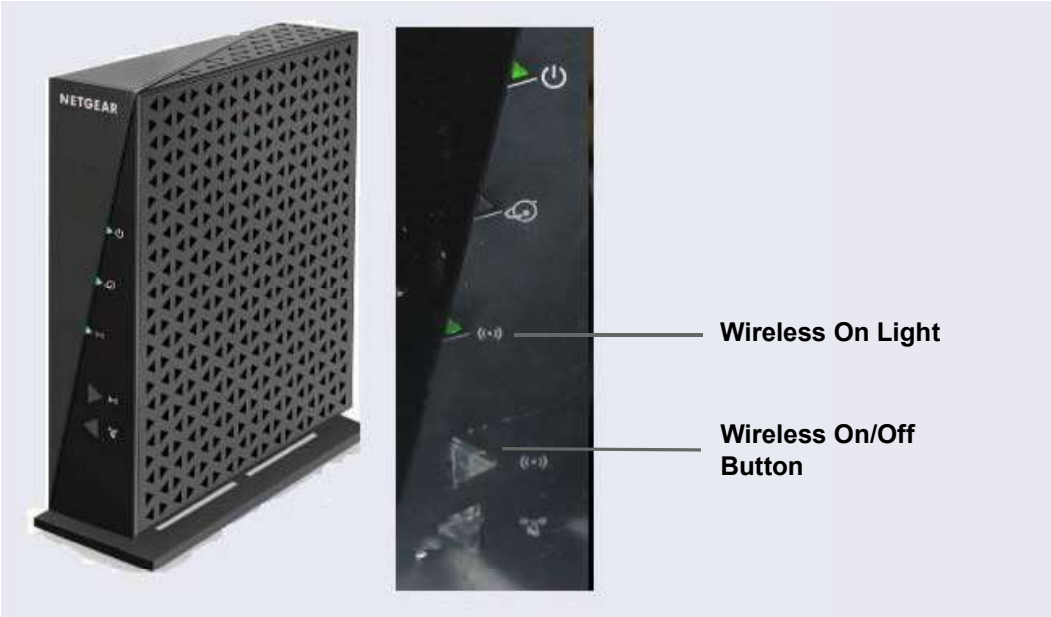


Figure 3-41. *Wireless Router On/Off Button and Status Light*

3.10.2 Installing an Ethernet Instrument PC

IPC to Router Connection

This section contains setup instructions for an IPC connected via Ethernet. An Ethernet connection is required if the IPC does not have wireless connectivity of if IT policy prohibits wireless connections.

1. If an Ethernet port is not available on the IPC, attach the cable connector on the USB-to-Ethernet adapter (P/N 00302-99-00131) in the kit to a USB port on the IPC (see Figure 3-43, item ❶).

2. Connect an Ethernet cable (P/N 00302-99-00129) to the USB port on the USB-to-Ethernet adapter (see Figure 3-43, item ❷).

Figure 3-42. *Ethernet USB-to-LAN Connection*

3. Connect the other end of the Ethernet cable (P/N 00302-99-00129) to any available LAN port on the router.

NOTE Do not connect the cable to the yellow Internet port.

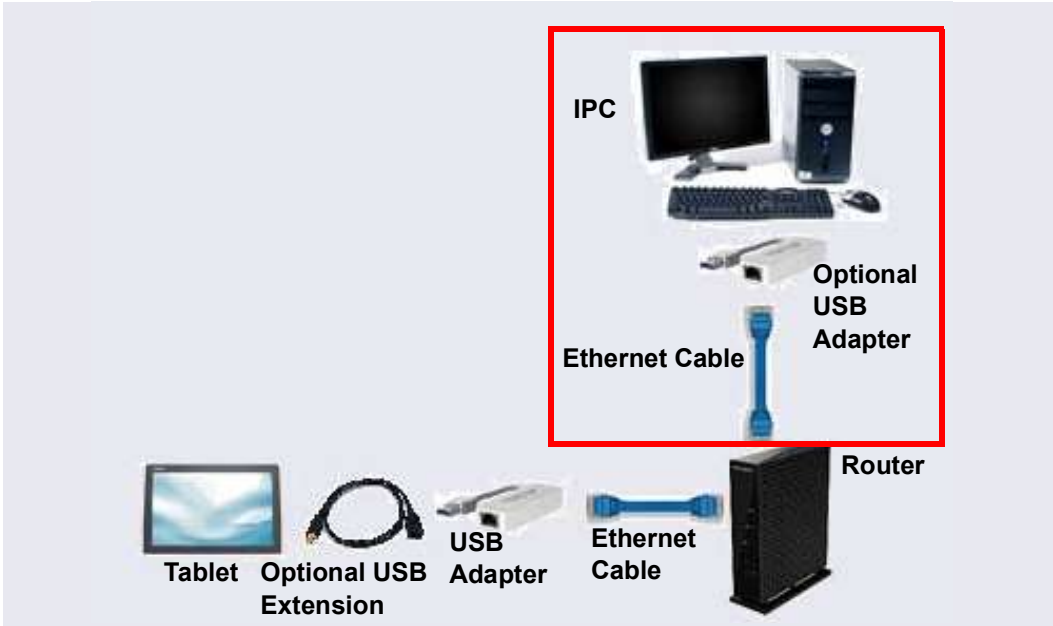


Figure 3-43. *Cabling IPC to Router to Tablet*

3.10.3 Installing an Ethernet Tablet

The hardware installation allows the tablet to send commands through the router to the IPC. The commands are carried out when they are received from the router.

1. An Ethernet cable (P/N 00302-99-00129) was routed to the rear of the DC when the tablet was cabled for the Ethernet connection (see Section 3.9.4). Connect the free end of the Ethernet cable to any LAN port on the rear of the router (P/N 00302-99-00131).

   NOTE Do not connect the cable to the yellow Internet port.

2. The tablet may already be installed in the tablet holder; if not, place it in the tablet holder.
3. Connect the Ethernet cable to the tablet, if it is not already connected. Because the tablet supplied in the Thermo Fisher Scientific tablet kit does not have a LAN port, the Ethernet connection uses one of the USB-to-Ethernet adapters provided in the Tablet Connectivity Kit to connect to the tablet USB port (see Figure 3-44). If necessary, use the USB extension cable (P/N 00302-99-00130) provided in the Tablet Connectivity Kit between the adapter and the tablet.

4. Connect the tablet power, if it is not already connected (see Section 3.9.3).

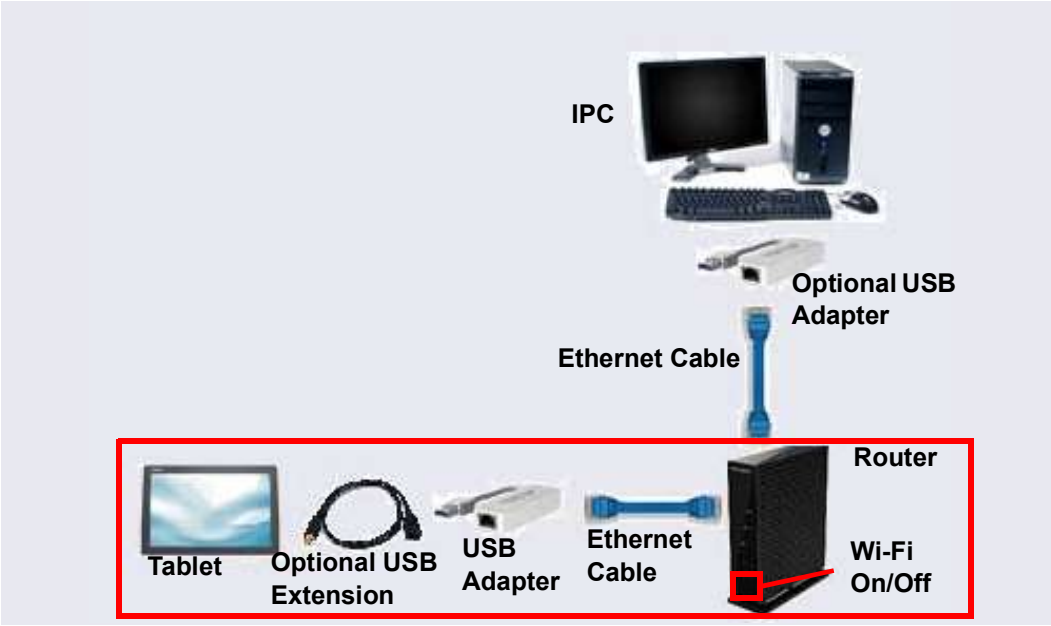


Figure 3-44. *Ethernet Connections from the Tablet to the Router*

3.10.4 Installing a Wireless Tablet

The wireless tablet does not require any physical connections to send data to the IPC, although it is necessary to install a wireless router (see Section 3.10.1).

Connecting the Tablet OS

1. Verify that the tablet power is on.
2. On the Windows taskbar, locate the network icon in the system tray (in the lower-right corner of the startup screen). Tap the icon to display a list of available networks.
3. On the **Wi-Fi** menu, tap **Locate SSID**.
4. Find the entry for the router SSID, and tap the corresponding **Connect automatically** option.
5. Tap **Connect** to close the menu.
6. When prompted for a password, enter the router password copied from the bottom of the router.

7. The Netgear genie dialog box appears, confirming that the network is recognized. To close the dialog box, tap the close button at the top of the window. Do not tap the **Continue** button in the Netgear dialog box.

Connecting the IPC OS

1. Verify that the IPC power is on.
2. On the Windows taskbar, locate the network icon in the system tray (in the lower-right corner of the startup screen). Tap the icon to display a list of available networks.
3. Find the router connection name that matches the router name copied from the bottom of the wireless router, and click the connection.
4. Find the entry for the router SSID, and click the corresponding **Connect automatically** option.
5. Click **Connect** to close the menu.
6. When prompted for a password, enter the router password.
7. The Netgear genie dialog box appears, confirming that the network is recognized. To close the dialog box, click the close button at the top of the window. Do not click the **Continue** button in the Netgear dialog box.
8. Verify the IPC and tablet are communicating

3.11 Connecting the Tablet to the Instrument PC

3.11.1 Installing the ICS-6000 App

Follow the instructions in this section if the tablet that will be used with the Dionex ICS-6000 is not purchased from Thermo Fisher Scientific.

1. Connect the tablet that will be used with the Dionex ICS-6000 to the Internet.
2. Use Windows Search on the taskbar (or press **Windows Key + S**) to find “Store.”
3. Tap the Store best match link to start the Microsoft Store App.
4. In the Microsoft Store App, tap the magnifying glass icon and enter “ICS-6000” in the search field.

5. Tap the **Dionex ICS-6000 Automation Manager Tablet App** entry in the search results.
6. Tap **Get** to download and install the ICS-6000 App.
7. When the ICS-6000 App installation is complete, a **Launch** button is displayed on the tablet.
8. For ease of use, localize the ICS-6000 App immediately. Language options include Chinese (simplified and traditional), French, German, Italian, Japanese, Korean, Portuguese, Russian, and Spanish.
   a. Go to the tablet Home page.
   b. On the quick access toolbar at the top of the page, tap the gear icon.
   c. Tap the name of the preferred language.
9. Verify that the tablet and IPC are able to see the same network (see "PC and Tablet Communication Test" on page 77).

Go on to Section 3.11.2 to install the ICS-6000 Tablet Setup Utility.

3.11.2 Installing the ICS-6000 Tablet Setup Utility

Follow the instructions in this section if the tablet that will be used with the Dionex ICS-6000 was not purchased from Thermo Fisher Scientific.

NOTE The ICS-6000 Tablet Setup Utility must be installed in order to automatically pair the tablet with the Chromeleon instrument PC (IPC) (see Section 3.12.2).

1. Insert the Chromeleon DVD into the DVD drive of the tablet.

   NOTE If the tablet does not have a DVD drive, copy the **Tools/ICS-6000 Tablet Setup** folder from the DVD onto a USB drive (or other compatible medium) and then copy the folder to the tablet.

2. Locate the **Tools/ICS-6000 Tablet Setup** folder (see Figure 3-45).

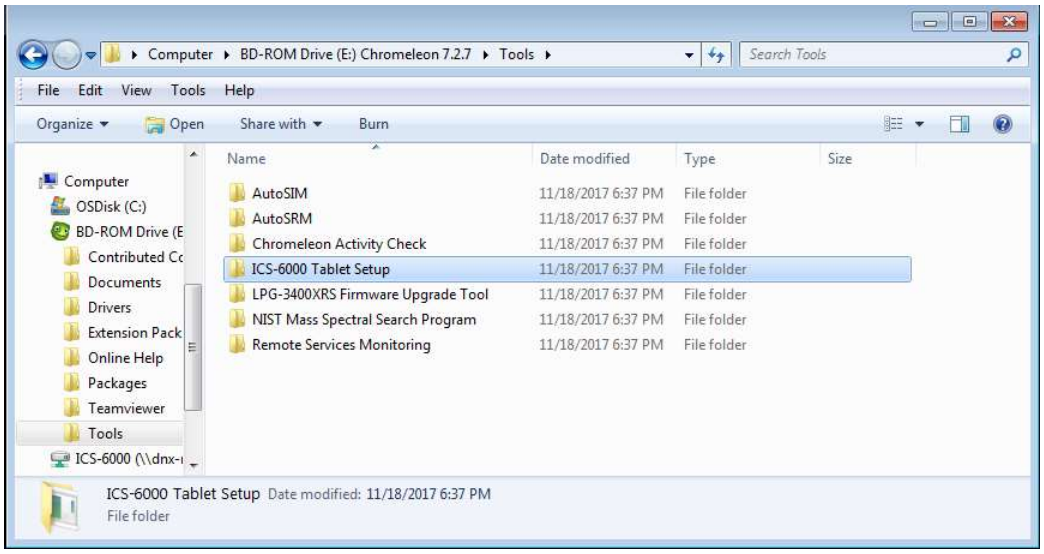


Figure 3-45. *ICS-6000 Tablet Setup Utility Location*

3. Right-click the folder, and then click **Open**.
4. Right-click the **ICS6000TabletSetup.exe** file, and then click **Run as Administrator** (see Figure 3-46).

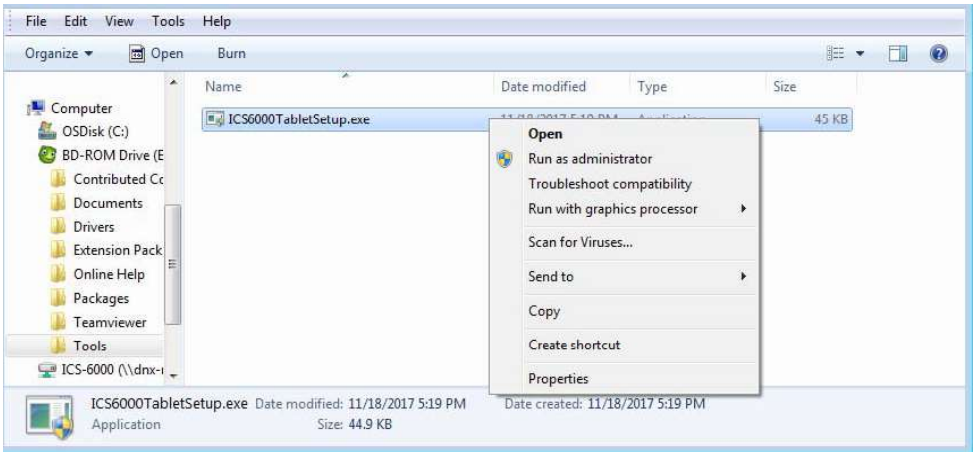


Figure 3-46. *Run the ICS-6000 Tablet Setup Utility*

5. The utility begins running automatically. When installation is complete (within a few seconds, press any key to close the command window (see Figure 3-47).

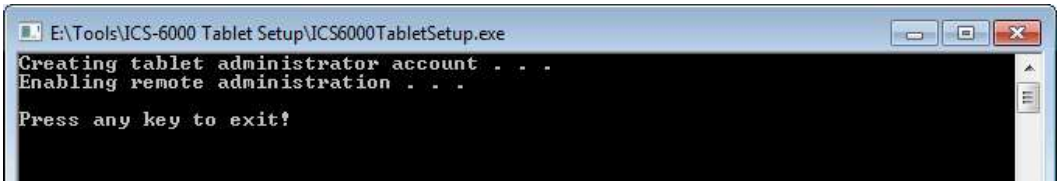


Figure 3-47. *ICS-6000 Tablet Setup Utility Command Window*

Go on to Section 3.12.

3.12 Introduction to Pairing

Pairing is the process of linking, or *associating*, the tablet with the Chromeleon instrument PC (IPC). Pairing enables communication between the tablet and the IPC, which can then transmit commands to the Dionex ICS-6000 via Chromeleon.

There are two pairing procedures:

- Thermo Fisher Scientific recommends the *automatic* pairing procedure (see Section 3.12.1).
- If automatic pairing is unsuccessful, repeat the automatic pairing procedure or perform the *manual* pairing procedure (see Section 3.12.2).

Prerequisites for Pairing

- Decide which tablet and IPC to pair for mobile access to the Dionex ICS-6000.
    - A tablet can pair with (and control) only one Dionex ICS-6000 IPC at a time. After pairing, the tablet cannot be used with any other Dionex ICS-6000 until it is paired with another IPC.
    - In order for a paired tablet and an IPC to communicate with each other, they must be connected to the same network.
- Verify that Chromeleon is installed on the selected IPC.
- Verify that you have Chromeleon administrator rights on the selected IPC.

- If the tablet was not purchased from Thermo Fisher Scientific, verify that the ICS-6000 Setup Utility is installed (see Section 3.11.2).

3.12.1 Automatically Pairing the Tablet and Instrument PC

1. On the Windows taskbar, click **Start > All Programs > Thermo Chromeleon 7 > ICS-6000 Tablet Configuration**. The ICS-6000 Tablet Configuration dialog box appears (see Figure 3-48).

Figure 3-48. *ICS-6000 Tablet Configuration Dialog Box*

2. Click **Pair** to generate a QR code (see Figure 3-49). The QR code is a two-dimensional barcode that contains the information needed for the tablet to connect to the IPC.

Figure 3-49. *QR Code for the ICS-6000 Tablet Configuration*

3. Upon reading the QR code, the tablet powers up and the startup screen is displayed. Tap the Thermo Fisher Scientific icon in the center of the screen to display the Log In page (see Figure 3-50).

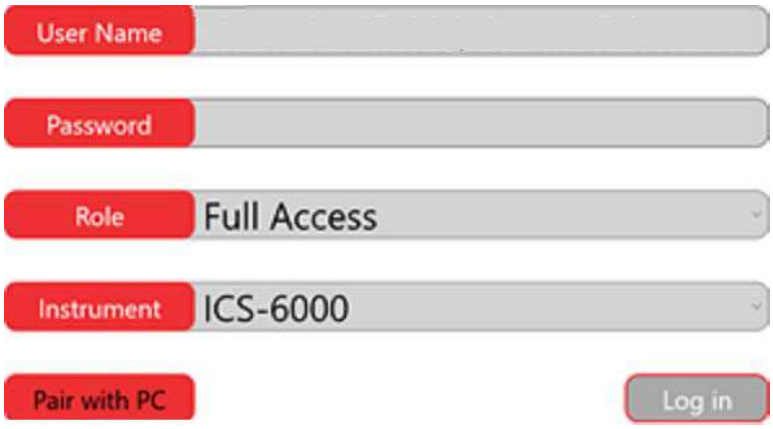


Figure 3-50. *ICS-6000 App Log In Page*

4. Tap **Pair with PC**. This selects camera mode for the tablet.
5. When the Scanning window is displayed (see Figure 3-51), prepare to scan the QR code with the tablet camera. To do so, hold the tablet so that the entire QR code is displayed squarely on the tablet. When properly aligned, the QR code is captured and the tablet camera is turned off.

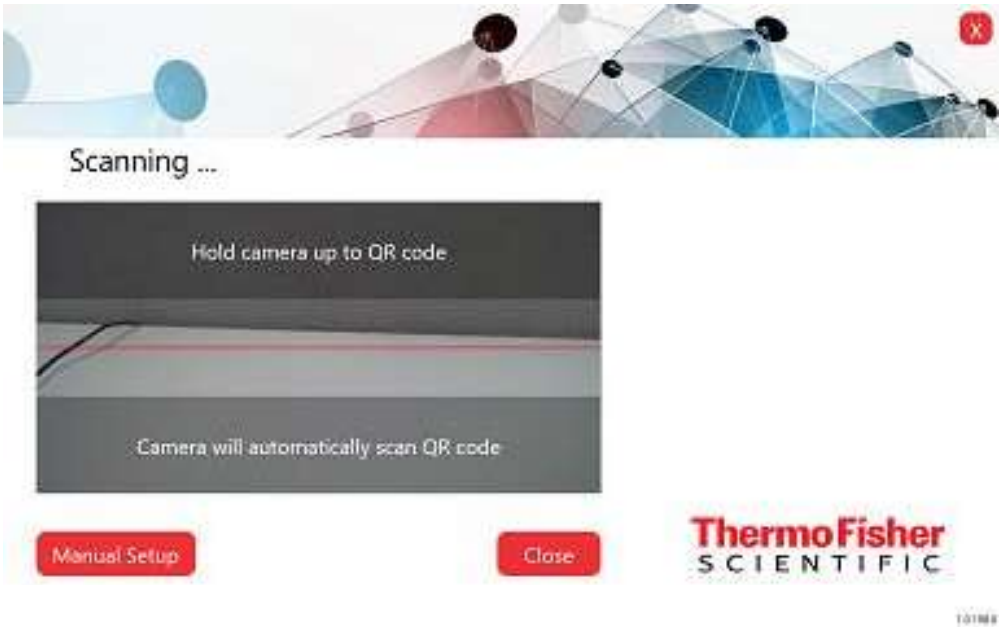


Figure 3-51. *Scanning the QR Code*

6. Click **Close** to exit the ICS-6000 App.
7. Restart the app and verify that the message “Connected to <IPC>” is displayed at the bottom of the log in page.

   NOTE If the message is not displayed, repeat the automatic pairing procedure or go to Section 3.12.2 to manually pair the tablet and IPC.

8. If user mode is enabled in Chromeleon, log in to the app, using the credentials required to log into Chromeleon on the IPC.

   NOTE If user mode is not enabled, login information is hidden and the operator is automatically authenticated. For more information about user mode, refer to the Chromeleon Help.

3.12.2 Manually Pairing the Tablet and Instrument PC

Perform the manual pairing procedure only if the automatic pairing procedure (see Section 3.12.1) is not successful.

Tasks Performed from the Instrument PC

1. Obtain the IP address of the instrument PC:
   a. On the Windows taskbar, click **Start > All Programs** > **Accessories** > **Command Prompt**. The command prompt window appears.
   b. Type “ipconfig.”
   c. Locate the **IPv4 Address** and write it down.
   d. Close the window.
2. Obtain the computer name of the instrument PC:
   a. On the Windows taskbar, click **Start** > **Control Panel**.
   b. Click **System and Security**.
   c. In the right-hand pane, under **System**, click S**ee the name of this computer**.
   d. Under **Computer name, domain, and workgroup settings**, locate the **Full computer name** and write it down.

e. Close the **System** window.

3. Add the instrument PC IP address to the tablet “hosts” file:

   a. On the tablet taskbar, tap **Start**.

   b. On the **Start** menu, tap **All Programs** > **Accessories** > **Notepad**.

   c. Tap the Notepad icon and select **Run as administrator**.

   d. Navigate to the C:/Windows/System32/drivers/etc/ folder and open the “hosts” file (the file has no extension).

   e. Press **Enter** after the end of the last line in the file. On the new line, type the full IP address, space once, and type the full computer name.

   f. In Notepad, tap **File** and then tap **Save As**.

   g. Under **Save as type**, tap the ***select All Files (*.*)** option.

   h. Accept “hosts” as the file name.

   i. In Notepad, tap **Save** and then tap **Close**.

4. Save and copy the pairing certificate:

   a. On the Windows taskbar**,** click **Start > All Programs** > **Accessories** > **Command Prompt**. The command prompt window appears.

   b. Type “mmc.exe”to launch the Microsoft Management Console. The User Account Control dialog box appears.

   c. When prompted whether to allow the console to make changes, click **Yes**. The Console1 - [Console Root] window appears.

   d. On the **File** menu, click **Add/Remove Snap-in**. The Add or Remove Snap-ins dialog box appears.

   e. In the **Available snap-ins** list box, click **Certificates**, and then click **Add**. The Certificates snap-in dialog box appears.

   f. Click **Computer account**, and then click **Next**. The Select Computer dialog box appears.

   g. Click **Local computer** and click **Finish**.

   h. In the Add or Remove Snap-ins dialog box, click **OK** to create a new Snap-in.

i. On **Console1 - [Console Root]**, in the left navigation pane, click **Console Root > Certificates > Personal > Certificates** and right-click to select the **Chromeleon 7 Web API Self-Signed** certificate.

5. In the Chromeleon 7 Web API Self-Signed drop-down list, select **All Tasks** and then click **Export**. The Certificate Export Wizard dialog box appears.

   a. Click **Next** in the dialog box.

   b. Click **No, do not export the private key,** and then click **Next**.

   c. Select a certificate format, and click **Next**.

   NOTE The selected certificate format does not matter, provided that you use the same format to access the certificate by both the IPC and the tablet.

   d. Select the file name of the new certificate (for example, "MyCertificate.cer" on the C:\ drive), and click **Next**.

   e. Click **Finish**.

   f. When the "The export was successful." message is displayed, click **OK**.

6. In **Console1 - [Console Root]**, click the **Close** button to exit the console.

7. Copy the export file containing the Chromeleon 7 Web API Self-Signed certificate to a USB drive or other device the tablet can read.

Tasks Performed from the Tablet

1. Verify that the tablet is connected to the same network as the IPC:

   - Check the physical hardware.
   - Check the network IP address. Follow the procedure used to obtain the IP address for the IPC in Step 1 of Section 3.12.2.

2. Copy the Chromeleon certificate created on the IPC in the previous section (see Step 7) to the tablet.

3. Double-click to open the certificate file.

4. In the Certificate dialog box, click **Install Certificate**. The Certificate Import Wizard dialog box appears.

5. Select **Local Machine**, and then click **Next**.
6. Click **Place all certificates in the following store**, browse to locate "Trusted Root Certification Authorities," and click **Next.**
7. Click **Finish**.
8. In the Certificate dialog box, click **Install Certificate**.

g. When the "The import was successful." message is displayed, click **OK**.