Combi*Flash*® Companion® XL Installation Guide

Indoor Use Only
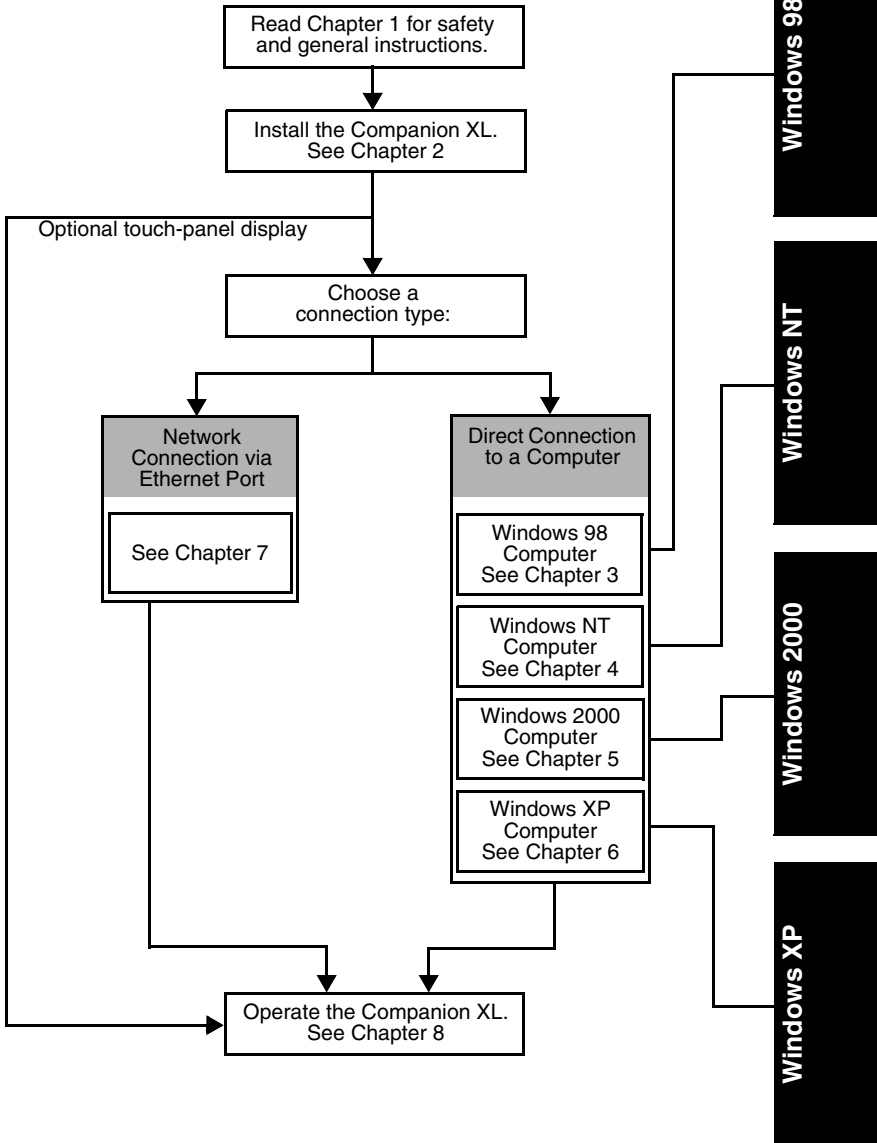
Installation Flowchart

```
┌─────────────────────────┐
│ Read Chapter 1 for safety │
│ and general instructions. │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│  Install the Companion XL. │
│      See Chapter 2         │
└─────────────────────────┘
            │
Optional touch-panel display
            │
            ▼
┌─────────────────────────┐
│      Choose a            │
│   connection type:       │
└─────────────────────────┘
```

Optional touch-panel display

Network Connection via Ethernet Port

See Chapter 7

Direct Connection to a Computer

Windows 98 Computer
See Chapter 3

Windows NT Computer
See Chapter 4

Windows 2000 Computer
See Chapter 5

Windows XP Computer
See Chapter 6

Operate the Companion XL.
See Chapter 8

Windows 98

Windows NT

Windows 2000

Windows XP

Combi*Flash*® Companion® XL Installation Guide

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Combi*Flash*® Companion® XL Installation Guide

Section 1 Introduction

1.1 Documentation Overview

This installation guide provides:

- Safety information

- Unpacking instructions

- Installation instructions, including —

    - Direct connection to a computer

    - Placing the Companion XL on a network

The installation procedure will vary according to the intended instrument control method. To determine which steps are required, refer to the *Installation Flowchart* on page iii of this guide.

Once you have connected to the Companion XL, you may refer to PeakTrak's on-line help for operating instructions.

The documentation CD that accompanies the Companion XL contains this guide and the Foxy 200 Instruction Manual in Adobe Acrobat PDF format, and the PeakTrak® On-line Help.

1.2 Product Overview

The Teledyne Isco Combi*Flash*® Companion® XL flash chromatography system gives you high-productivity automation, programmable gradients, and full-spectrum UV detection and peak separation. The Companion XL is a high capacity system that purifies samples up to 150 grams. Yet, its small size makes the system well suited for operation in chemical hoods.

☑ *Important*

Indoor use only.

⚠ **WARNING**

Avoid hazardous practices! If you use this instrument in any way not specified in this manual, the protection provided by the instrument may be impaired; this may increase your risk of injury.

Control of the Companion XL is through a simple to use interface. This interface can be accessed through a Windows computer directly connected to the instrument, or through a standard computer network. The Companion XL can also be configured with an optional touch-panel display. In all, you have the flexibility to program, operate, and monitor the Companion XL at the instrument, from a computer in the lab, or from remote locations.

The Companion XL uses Teledyne Isco Redi*Sep*® columns. Compatible sizes range from 120 to 1500 grams, which can accept sample sizes from 0.1 to 150 grams.

Applications include purification of organic compounds for drug discovery, as well as research in agrochemicals, petrochemicals, natural products, polymers, and catalysts.

*Figure 1-1 CombiFlash Companion XL with Foxy 200 Fraction
Collector (shown with optional touch-panel display)*

1.3 Operating Overview

The Companion XL may be controlled by a Windows® computer or by the optional touch-panel display. The Companion XL may be connected to the computer in two different ways, direct or network.

Computers running Windows operating system may be directly connected to the Companion XL using a cross-over cable between Ethernet ports. Computers running Windows operating system may also connect to the Companion XL through a network using TCP/IP protocol.

☑ *Note*

Teledyne Isco recommends that you obtain assistance from your IT department before attempting direct or network connections to a Windows computer.

1.3.1 Control Priorities

The Companion XL supports multiple connections. However, only one computer connection may control the instrument. If you are using the optional touch-screen display, it always controls the Companion XL, regardless of the other connections. With network operation, the first connection to the Companion XL becomes the controlling device. The second user logged in will only be able to view the operation.

1.3.2 File Storage

To support operation from a variety of direct and network connections, the software and all support files are stored within the Companion XL. This ensures that your separation or purification methods and run history files can be viewed from any connection.

A login password prevents unauthorized access to the Companion XL from remote connections.

1.4 Specifications

Table 1-1 Specifications[a,b]	
Dimensions	Height: 64 cm (25") Width: 37 cm (14.5") Depth: 40 cm (15.75")
Weight	23.5 kg (51.7 lbs)
Power Options	Input voltage range from 100 to 240 VAC, 2.0 Amps maximum
Line Frequency	50/60 Hz
Ambient Temperature	20 to 40°C (maximum temperature must be at least 10°C below the boiling point of the solvent)
Humidity (when connected to power)	95% relative humidity maximum at 20 to 40°C
Flow Rate Range	50 to 450 ml/min
Flow Rate Accuracy	±5%
Pressure Limit	50 psi
Pressure Accuracy	±5 psi
Peak Detection Modes	Slope or threshold
UV Spectrum	200 to 360 nm
Wavelength Accuracy	±5 nm
Flow Cell Pathlength	0.1 mm, ±25%
Tube Fill Accuracy	$\pm[.6 + (1.3 \times$ flow rate$) \div 60]$ ml (for all tubes except bottles)
Pollution Degree	2
Electrical Safety per EN 61010-1	
Installation Category	II
Maximum Altitude	2000 meters

a. All specifications are preliminary and subject to change.
b. Specifications do not include the fraction collector. For these specifications, refer to the Foxy 200 Instruction Manual on the documentation CD.

1.5 Controls, Indicators, and Features

Figures 1-2 and 1-3 illustrate the controls on the Combi*Flash* Companion XL. Refer to the Foxy® 200 instruction manual for complete information on the fraction collector. This manual is available in PDF format on the documentation CD.
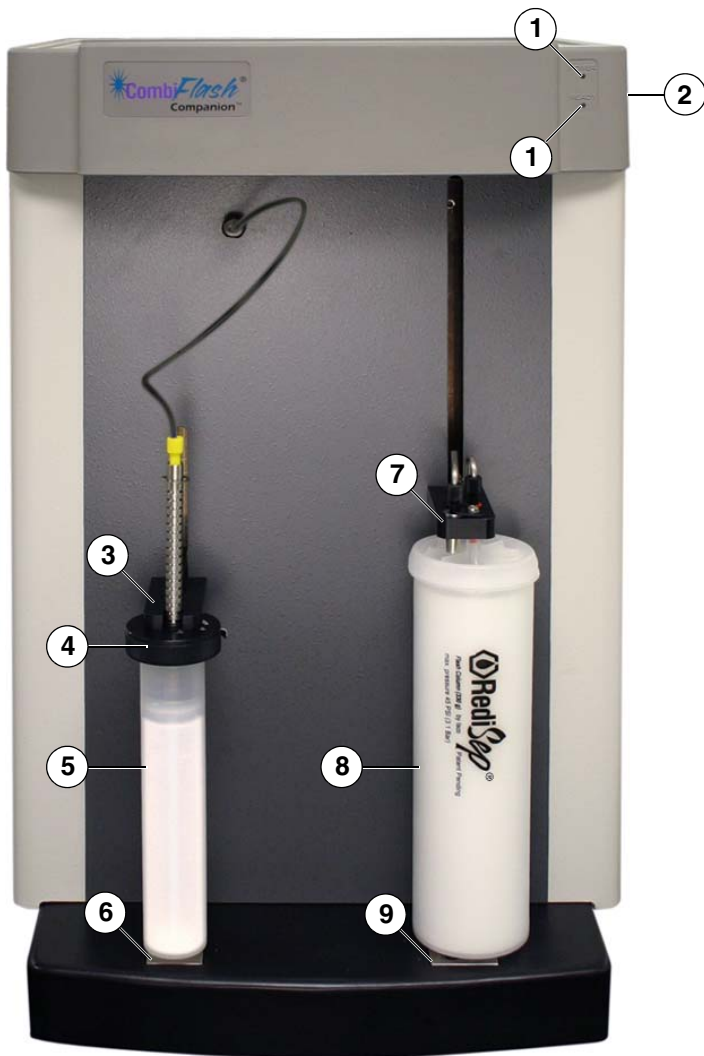

Figure 1-2 CombiFlash Companion XL (Front)

1. **Status LEDs** – The POWER LED lights when power is applied to the system. The READY LED illuminates after the Companion XL completes its startup routine and is ready for operation.

2. **Disconnect Device (Power Switch)** – Located on side of unit. 1 = ON, 0 = OFF

3. **Solid Sample Cartridge Retainer** – Supports a solid sample cartridge when installed. This spring-loaded retainer raises so that the cartridge can be inserted, then lowers to apply downward force on the Solid Sample Cartridge Cap, holding it in place. The system monitors the position of the retainer to determine if a cartridge is installed.

4. **Solid Sample Cartridge Cap** – Connects to top of solid sample cartridge. Three sizes are available to match the size of cartridge. The system ships with the 25 and 70g caps. The optional 300g cap and cartridges may be ordered as accessories.

5. **Solid Sample Cartridge** – Holds solid samples. Three sizes are available to match the size of cap (item 4).

6. **Sample Injection port** – Liquid samples are injected into this port, typically with a syringe. Solid sample cartridges connect to this port. When this port is included in the fluid path under software control, the sample is routed to the column.

7. **Upper Column Mount** – Secures top of Redi*Sep* column and directs solvent into the column. The mount adjusts to height of column. The position of this mount is read by the Companion XL to determine the column size. There are two sizes of fittings. The 120 and 330g columns use the smaller fitting; 750 and 1500g columns use the larger fitting.

8. **Redi*Sep* Column** – A 330g Redi*Sep* normal phase flash chromatography column is shown. Different column sizes and media are available for use on the Companion XL.

9. **Lower Column Mount** – Secures bottom of column. Fluids from the column outlet flow through this port to the internal optical detector. There are two sizes of holes. The 120 and 330g columns use the smaller hole; 750 and 1500g columns use the larger hole.
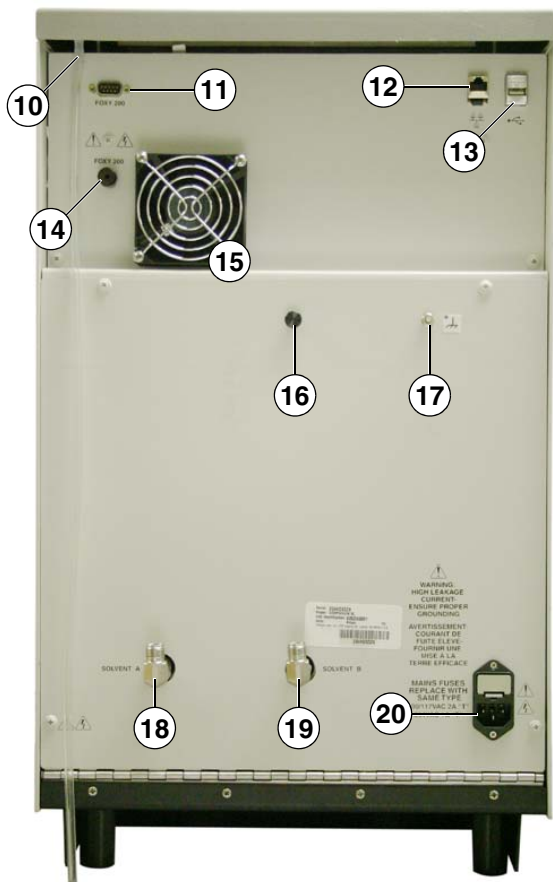
Figure 1-3 CombiFlash Companion XL (Back)

10. **Top Shelf Drain** – Spills on the top shelf are drained through this tubing.

11. **Foxy 200 Control Port** – Serial port for connection to Foxy 200 Fraction Collector.

12. **Ethernet Port** – 10/100-base T Ethernet connection. Used for direct connection to a computer using the cross-over cable, or for a network connection using a standard cable.

13. **USB Port** – unsupported at this time.

14. **Foxy 200 Fluid Port** – Routes fluid output to the fraction collector.

15. **Cooling Fan** – Ventilates and cools the Companion XL.

16. **Rear Panel Knob** – Service personnel only. Used to open the hinged rear panel to access internal components.

17. **Ground** – Optional equipment grounding post for user-customized applications.

18. **A Solvent Inlet** – Receives the A solvent liquid.

19. **B Solvent Inlet** – Receives the B solvent liquid.

20. **Mains Power** – Connects to AC line voltage.

1.6 Safety

Before installing, operating, or maintaining this equipment, it is imperative that all hazards and preventive measures are fully understood. While specific hazards may vary according to location and application, take heed in the following general warnings:

⚠ **WARNING**

Liquids associated with this instrument may be classified as carcinogenic, biohazard, flammable, or radioactive. Should these liquids be used, it is highly recommended that this application be accomplished in an isolated environment designed for these types of materials in accordance with federal, state, and local regulatory laws, and in compliance with your company's chemical/hygiene plan in the event of a spill.

⚠ **WARNING**

Avoid hazardous practices! If you use this instrument in any way not specified in this manual, the protection provided by the instrument may be impaired.

⚠ **WARNING**

If you are using flammable solvents or chemicals with this system, vapor concentration levels may exceed the maximum exposure levels as recommended by OSHA Guide 1910.1000. To reduce those levels to a safe exposure, Teledyne Isco recommends that you place the system in a laboratory hood designed for the purpose of ventilation. This hood should be constructed and operated in accordance with federal, state, and local regulations. In the event of a solvent or chemical spill, your organization should have a plan to deal with these mishaps. In all cases, use good laboratory practices and standard safety procedures.

1.6.1 Hazard Severity Levels

This manual applies *Hazard Severity Levels* to the safety alerts. These three levels are described in the sample alerts below.

⚠ **CAUTION**

Cautions identify a potential hazard, which if not avoided, may result in minor or moderate injury. This category can also warn you of unsafe practices, or conditions that may cause property damage.

⚠ **WARNING**

Warnings identify a potentially hazardous condition, which if not avoided, could result in death or serious injury.

⚠ **DANGER**

DANGER – limited to the most extreme situations to identify an imminent hazard, which if not avoided, will result in death or serious injury.

1.6.2 Hazard Symbols

The equipment and this manual use symbols used to warn of hazards. The symbols are explained in Table 1-2.

Table 1-2 Hazard Symbols

Warnings and Cautions	
⚠	The exclamation point within the triangle is a warning sign alerting you of important instructions in the instrument's technical reference manual.
⚡	The lightning flash and arrowhead within the triangle is a warning sign alerting you of "dangerous voltage" inside the product.
Symboles de sécurité	
⚠	Ce symbole signale l'existence d'instructions importantes relatives au produit dans ce manuel.
⚡	Ce symbole signale la présence d'un danger d'électocution.
Warnungen und Vorsichtshinweise	
⚠	Das Ausrufezeichen in Dreieck ist ein Warnzeichen, das Sie darauf aufmerksam macht, daß wichtige Anleitungen zu diesem Handbuch gehören.
⚡	Der gepfeilte Blitz im Dreieck ist ein Warnzeichen, das Sei vor "gefährlichen Spannungen" im Inneren des Produkts warnt.
Advertencias y Precauciones	
⚠	Esta señal le advierte sobre la importancia de las instrucciones del manual que acompañan a este producto.
⚡	Esta señal alerta sobre la presencia de alto voltaje en el interior del producto.

1.7 For Additional Information

Technical assistance for the Combi*Flash* Companion XL can be obtained from:

Teledyne Isco, Inc.
4700 Superior St.
Lincoln NE 68504

Phone: (800) 228-4373 or (402) 464-0231
Fax: (402) 465-3001
E-mail: Iscoservice@Teledyne.com

Combi*Flash*® Companion® XL Installation Guide

Section 2 Installation

This section provides instructions for unpacking the Companion XL and preparing it to be connected to a computer or network.

2.1 Unpacking the Unit

The Combi*Flash* Companion XL is shipped in multiple cartons. Carefully unpack the shipment and inspect the contents to verify receipt of all components against the packing list. If there is any damage to the shipping carton or any components, contact the shipping agent and Teledyne Isco (or its authorized representative) immediately.

⚠ WARNING

If there is any evidence that the system has been damaged in shipping, do not plug it into the power line. Contact Teledyne Isco or its authorized representative for advice.

Compare the contents of the boxes with the enclosed packing slip. If there are any shortages, contact Teledyne Isco immediately.

2.2 Assemble the Foxy 200

The Foxy 200 Fraction Collector must be assembled before use. Refer to the instructions supplied with the Foxy 200.

2.3 Instrument Location

The Combi*Flash* Companion XL has a footprint of about 1500 square centimeters (230 in^2) of bench space (37 cm W × 40 cm D, 14.5" W × 15.75" D). Ensure that the Companion XL has at least 3 cm (1.25") of air space behind it for ventilation. Additional space may be required for the solvent supply and waste containers.

⚠ **CAUTION**
Ensure there is at least 10 cm (4 inches) of air space on its right side so that the disconnect device (power switch) may be easily accessed in an emergency.

Space is required for fraction collection. A Foxy® 200 Fraction Collector has a footprint of about 2300 square centimeters (360 in^2) of bench space (38 cm W × 61 cm D, 15" W × 24" D). The Companion XL system includes one Foxy 200 Fraction Collector. If additional Foxy 200s were ordered to extend the collection capacity, more space is required. Fraction collectors may be stacked on shelves to conserve bench space. The Companion XL can control up to four Foxy 200 Fraction Collectors.

⚠ **CAUTION**
Ensure there are no obstructions on the left side of the fraction collector that would impede movement of the arm. Obstructions could misdirect fluids or damage the fraction collector.

☑ *Note*
If ordering additional Foxy 200 fraction collectors for the system, be sure to specify that they are intended for use with a Combi*Flash* Companion XL. Fraction collectors must be factory-configured for use with the Combi*Flash* Companion XL.

Refer to Table 1-1 for environmental conditions and power requirements.

2.4 Electrical Connections

2.4.1 Foxy 200 Control Cable

Locate the serial cable, P/N 480-7996-00, in the accessory kit. Attach this cable's 9-pin connector to the Foxy 200 Control Port on the rear panel of the Companion XL. Attach the other end to the 25-pin connector labeled "SERIAL" on the back of the Foxy 200.

If additional Foxy 200 Fraction Collectors are to be used with the system, connect the additional fraction collectors using the supplied "Y" cables.

2.4.2 Connect Power

⚠ WARNING
Mains power must meet the voltage, frequency, and amperage requirements listed on the instrument's serial number label.

Use the supplied IEC power cords to connect the Companion XL and Foxy 200 to mains power.

2.5 Connect Solvent Tubing

Attach the Solvent A and B lines to the fittings on the back of the Companion XL. Place the weighted ends of the solvent tubing in their respective solvent containers.

The solvent ports at the back of the Companion XL can be rotated so that tubing can be routed easily. To rotate the fitting, loosen the Swagelok® nut, rotate the elbow fitting to the desired position, then re-tighten the nut.

☑ *Note*
To prevent damage or premature wear to the pump and internal valves, clean solvent should be used. The solvent should not contain any dissolved solids.

⚠ WARNING
Risk of fire or equipment damage. Failure to connect Foxy 200 tubing may allow organic solvents to pool in unsafe areas, creating a potential for dangerous levels of flammable vapors.

Attach tubing to the Foxy 200 port on the back of the Companion XL and route it to the inlet port on the Foxy 200's Diverter Valve. Attach tubing to the Diverter Valve's Waste port and route it to a suitable collection container.

If additional Foxy 200 Fraction Collectors are to be used with the system, plumb the fraction collector liquid connections according the instructions in the connection package.

2.6 Connect Drain Tubing

⚠ WARNING

Risk of fire or equipment damage. Failure to connect drains may allow organic solvents to pool in unsafe areas, creating a potential for dangerous levels of flammable vapors.

There are two drains on the Companion XL that are used to manage spilled fluids. One drain is the located on the side of each Foxy 200 tray (Figure 2-1). This drain carries away fluid that spills in the tray beneath the tube rack. Attach tubing and route it to a suitable waste fluid collection container.

Figure 2-1 Foxy 200 Drain Tubing

The other drain is located on the top shelf of the Companion XL. Route the tubing attached to the bottom of this drain (Figure 2-2) to a suitable waste fluid collection container. This will carry away spills on the top shelf.

☑ *Note*

It may be necessary to extend the length of tubing from both locations. If so, splice the tubing with user-supplied tubing. The user-supplied tubing should have an inside diameter no smaller than the existing drain tubing, and must be compatible with the solvent being pumped. Route this extension tubing to the waste collection vessel.

Figure 2-2 Top Shelf Drain

Combi*Flash*® Companion® XL Installation Guide

Section 3 Direct Connection with Windows 98

This section provides instructions for establishing direct communications with the Companion XL from a computer with Windows 98 operating system.

3.1 Windows 98 Computer Requirements

Minimum System Requirements:

- 266 MHz Pentium processor
- 32 MB RAM
- Ethernet Port
- TCP/IP services installed
- VGA or better graphics, minimum screen area of 800 × 600 pixels
- Microsoft Windows 98, Second Edition
- Microsoft Internet Explorer 5.5 or later

3.2 Establishing a Direct Connection

Sections 3.2.1 through 3.2.3 configure the computer so that it can communicate with the Companion XL. After completing the steps, the computer and Companion XL may be operated as a stand-alone system, or the direct connection may be used to configure the Companion XL so that it can be added to a network (see section 7).

3.2.1 Configure the Computer's Local Area Network

1. From the Windows Start button, select "Settings>Control Panel" to view the control panels.

2. Locate the "Network" icon and open this control panel.

3. Highlight the "TCP/IP" item in the list, and click on the "Properties" button. The TCP/IP Properties Window will open (Figure 3-2). Select the IP Address tab.

☑ *Note*

The following steps change the local area connection settings. If the computer must be restored to its original network configuration, record the present Internet Protocol (TCP/IP) settings now.

4. Click the "Specify an IP address" option.

5. Enter the IP address "192.168.1.200".

6. Enter the default Subnet Mask "255.255.255.0."

7. Click the OK button to close the Internet Protocol properties window. Then, click the OK button to close the Local Area Connection properties window.
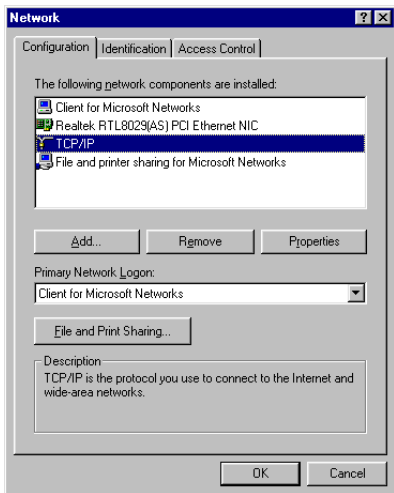
Figure 3-1 Network Control Panel Window
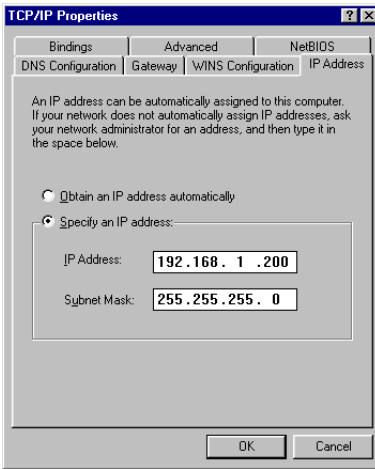
Figure 3-2 TCP/IP Properties Window

Windows 98

3.2.2 Configure the Computer's Internet Browser Options

1. Start Internet Explorer.

2. From the File menu, select "Work Offline."

3. From the Internet Explorer window, select the "Tools>Internet Options..." menu command.

4. Select the Security tab on the Internet Options window. Refer to Figure 3-3.

5. Highlight the Internet icon.

6. Click the "Custom Level" button. The Security Settings options will appear.

7. In the Reset Custom Settings box, select "Medium" from the pull-down list and click the Reset button.

8. In the Settings list, locate the ActiveX controls and plug-ins and select the following options (See Figure 3-4):

   • Download signed ActiveX controls – Enable

   • Run ActiveX controls and plug-ins – Enable

9. Click the OK button to close the Security settings options. If you are asked "Are you sure...?", click Yes and continue.

10. On the Internet Options window, click Apply to change the settings.

11. On the Internet Options window, select the Connections tab.

   a. Click the LAN Settings... button.

   b. Ensure that the "Use a Proxy Server" check box is not selected.
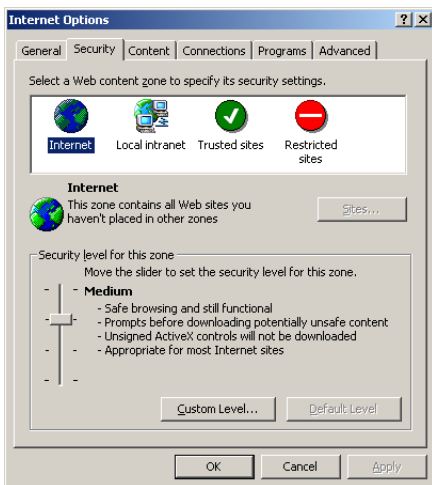
Figure 3-3 Default Internet Security Options
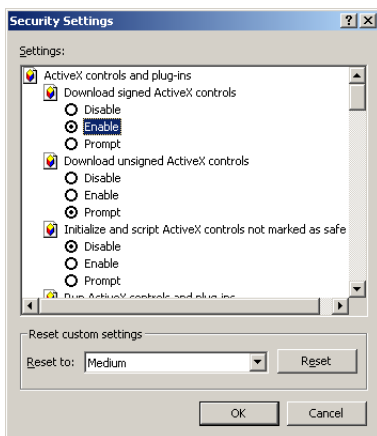
Figure 3-4 ActiveX Security Settings

Windows 98

> ☑ *Note*
>
> The "Use a Proxy Server" check box must be cleared to connect to the Companion XL.

   c. Click OK to close the LAN settings window.

12. Click OK to close the window.

13. Shut down the computer.

3.2.3 Start Direct Communications

1. Connect the Windows 98 computer to the Companion XL using the blue cross-over cable (P/N 480-6545-02).

2. Turn the Companion XL's power switch to ON. Wait for the second green light (Ready), and then start the computer.

3. Start Internet Explorer and type in the address "http://192.168.1.51/login". The browser will display the PeakTrak Login screen.

> ☑ *Note*
>
> The PeakTrak Login screen indicates that the direct connection is working.

4. Enter the login password for the Companion XL. The Companion XL is shipped with the default password of "companion" (all lower-case). Click the submit button.

> ☑ *Note*
>
> The default password may be changed after you have established the connection. Refer to the Companion XL's on-line help documentation after you have completed the connection.

5. The Companion XL begins to download the necessary files for operation.

6. When the download is complete, the Companion XL will display the PeakTrak Main window. The title bar will read "Companion Powered by PeakTrak."

☑ *Note*

Some versions of the Windows operating system will require the computer to be restarted before new ActiveX plug-ins can run. If you are notified that the computer must be restarted, you may do so now. After the computer restarts, complete steps 3 and 4 again to reach the PeakTrak Main window.

The Companion XL and the computer are now configured as a stand-alone system. Refer to PeakTrak's on-line help for operating instructions. Abbreviated instructions can be found in Section 8 of this guide.

If you want to add the Companion XL to the network, proceed with Section 7 of this installation guide.

Combi*Flash*® Companion® XL Installation Guide

Section 4 Direct Connection with Windows NT4

This section provides instructions for establishing communications with the Companion XL from a computer with Windows NT4 operating system.

4.1 Windows NT4 Computer Requirements

Minimum System Requirements:

- 266 MHz Pentium processor
- 32 MB RAM
- Ethernet Port
- TCP/IP services installed
- VGA or better graphics, minimum screen area of 800×600 pixels
- Microsoft Windows NT 4.0
- Microsoft Internet Explorer 5.5 or later

☑ *Note*

The procedures described in this section will require a user account on the PC with administrator privileges. If your user account does not have administrator privileges, contact your IT department before proceeding.

4.2 Establishing a Direct Connection

Sections 4.2.1 through 4.2.3 configure the computer so that it can directly communicate with the Companion XL. After completing the steps, the computer and Companion XL may be operated as a stand-alone system, or the direct connection may be used to configure the Companion XL so that it can be added to a network (see Section 7).

4.2.1 Configure the Computer's Local Area Network

1. From the Windows Start button, select "Settings>Control Panel" to view the control panels.

2. Locate the "Network" icon and open this control panel.

3. View the Protocols tab of the Network window and highlight the "TCP/IP Protocol" item in the list. Then, click on the "Properties" button. Refer to Figure 4-1.

☑ *Note*

The following steps change the local area connection settings. If the computer must be restored to its original network configuration, record the present Internet Protocol (TCP/IP) settings now.

---

4. Click the "Specify an IP address" option.

5. Enter the IP address "192.168.1.200".

6. Enter the default Subnet Mask "255.255.255.0."

7. Click the OK button to close the TCP/IP Properties properties window. Then, click the OK button to close the Network properties window.
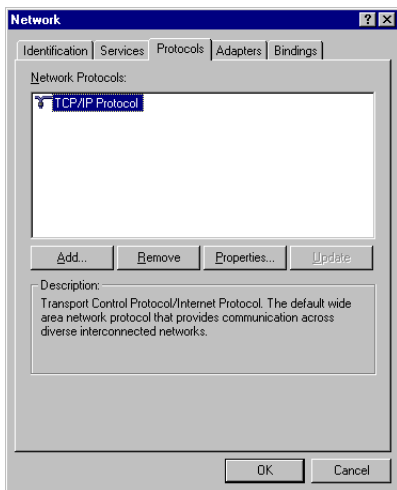
Figure 4-1 Network Protocols
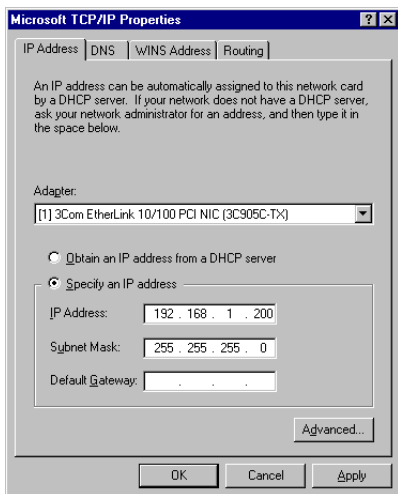
Figure 4-2 TCP/IP Properties

4.2.2 Configure the Computer's Internet Browser Options

1. Start Internet Explorer.

2. From the File menu, select "Work Offline."

3. From the Internet Explorer window, select the "Tools>Internet Options..." menu command.

4. Select the Security tab on the Internet Options window (see Figure 4-3).

5. Highlight the Internet icon.

6. Click the "Custom Level" button. The Security Settings options will appear.

7. In the Reset Custom Settings box, select "Medium" from the pull-down list and click the Reset button.

8. In the Settings list, locate the ActiveX controls and plug-ins and select the following options (See Figure 4-4):

   • Download signed ActiveX controls – Enable

   • Run ActiveX controls and plug-ins – Enable

9. Click the OK button to close the Security settings options. If you are asked "Are you sure...?", click Yes and continue.

Windows NT

10. On the Internet Options window, click Apply to change the settings.

11. On the Internet Options window, select the Connections tab.

   a. Click the LAN Settings... button.

   b. Ensure that the "Use a Proxy Server" check box is not selected.
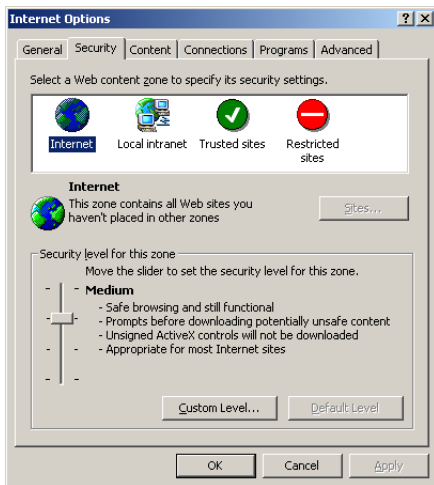
Figure 4-3 Default Internet Security Options
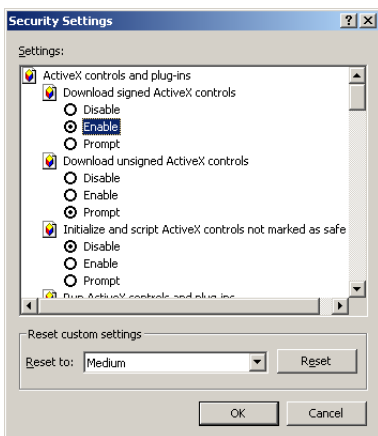
Figure 4-4 ActiveX Security Settings

☑ *Note*

The "Use a Proxy Server" check box must be cleared to connect to the Companion XL.

   c. Click OK to close the LAN settings window.

12. Click OK to close the window.

13. Shut down the computer.

4.2.3 Start Direct Communications

1. Connect the Windows NT computer to the Companion XL using the blue cross-over cable (P/N 480-6545-02).

2. Turn the Companion XL's power switch to ON. Wait for the second green light (Ready), and then start the computer.

3. Log in to the computer using an account with administrator privileges.

☑ *Note*

Logging in with administrator privileges is necessary to register PeakTrak software components (during step 6) on the computer so that all user accounts on that computer will be able to connect to the Companion XL.

4. Start Internet Explorer and type in the address "http://192.168.1.51/login". The browser will display the PeakTrak Login screen.

☑ *Note*

The PeakTrak Login screen indicates that the direct connection is working.

5. Enter the login password for the Companion XL. The Companion XL is shipped with the default password of "companion" (all lower-case). Click the submit button.

☑ *Note*

The default password may be changed after you have established the connection. Refer to the Companion XL's Help documentation after you have completed the connection.

Windows NT

6. The Companion XL begins to download the necessary files for operation.

7. When the download is complete, the Companion XL will display the PeakTrak Main window. The title bar will read "Companion Powered by PeakTrak."

☑ *Note*

Some versions of Windows operating system will require the computer to be restarted before new ActiveX plug-ins can run. If you are notified that the computer must be restarted, you may do so now. After the computer restarts, complete steps 4 and 5 again to reach the PeakTrak Main window.

The Companion XL and the computer are now configured as a stand-alone system. Refer to PeakTrak's on-line help for operating instructions. Abbreviated instructions can be found in Section 8 of this guide.

If you want to add the Companion XL to the network, proceed with Section 7 of this installation guide.

Combi*Flash*® Companion® XL Installation Guide

Section 5 Direct Connection with Windows 2000

This section provides instructions for establishing communications with the Companion XL from a computer with Windows 2000 operating system.

5.1 Windows 2000 Computer Requirements

Minimum System Requirements:

- 266 MHz Pentium processor
- 64 MB RAM
- Ethernet Port
- TCP/IP services installed
- VGA or better graphics, minimum screen area of 800×600 pixels
- Microsoft Windows 2000, Service Pack 3
- Microsoft Internet Explorer 5.5 or later

☑ *Note*

The procedures described in this section will require a user account on the PC with Administrator privileges. If your user account does not have administrator privileges, contact your IT department before proceeding.

5.2 Establishing a Direct Connection

Sections 5.2.1 through 5.2.3 configure the computer so that it can communicate with the Companion XL. After completing the steps, the computer and Companion XL may be operated as a stand-alone system, or the direct connection may be used to configure the Companion XL so that it can be added to a network (see Section 7).

Windows 2000

5.2.1 Configure the Computer's Local Area Network

1. From the Windows Start button, select "Settings>Control Panel" to view the control panels.

2. Locate the "Network and Dial-up Connections" icon and open this control panel.

3. Highlight the "Local Area Connection" icon. View the properties by right-clicking and selecting "Properties." The Local Area Connection Properties Window will open (Figure 5-1).

4. Highlight the "Internet Protocol (TCP/IP)" item in the list, and click on the "Properties" button. The Internet Protocol Properties Window will open (Figure 5-2).

☑ *Note*

The following steps change the local area connection settings. If the computer must be restored to its original network configuration, record the present Internet Protocol (TCP/IP) settings now.

---

5. Click the "Use the following IP address" option.

6. Enter the IP address "192.168.1.200".
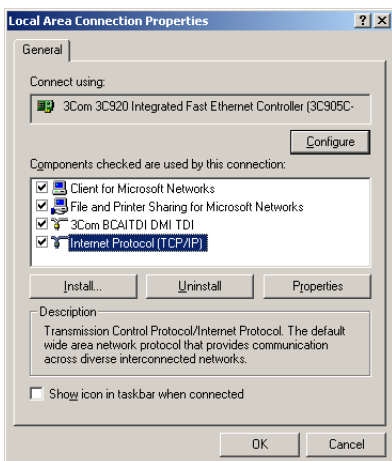
Figure 5-1 Local Area Connection Properties Window
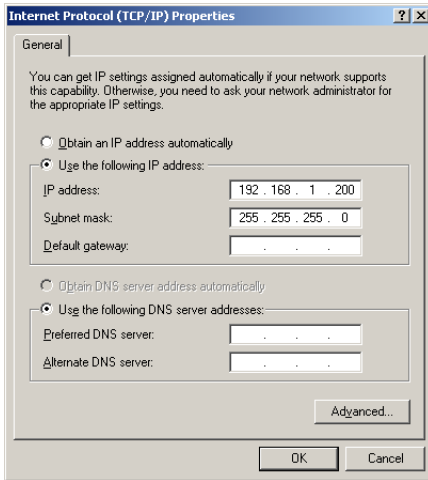
Figure 5-2 Internet Protocol Properties Window

7. Enter the default Subnet Mask "255.255.255.0."

8. Click the OK button to close the Internet Protocol properties window. Then, click the OK button to close the Local Area Connection properties window.

5.2.2 Configure the Computer's Internet Browser Options

1. Start Internet Explorer.

2. From the File menu, select "Work Offline."

3. From the Internet Explorer window, select the "Tools>Internet Options..." menu command.

4. Select the Security tab on the Internet Options window. Refer to Figure 5-3.

5. Highlight the Internet icon.

Windows 2000
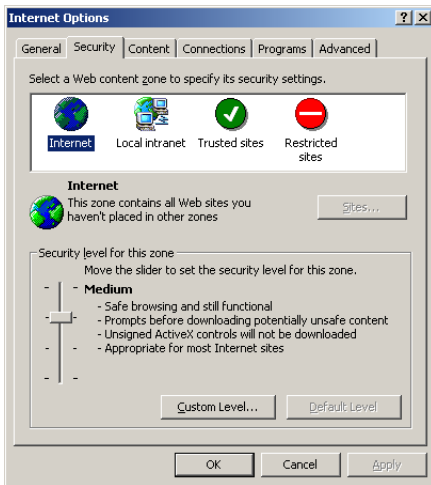
Figure 5-3 Default Internet Security Options

6. Click the "Custom Level" button. The Security Settings options will appear.

7. In the Reset Custom Settings box, select "Medium" from the pull-down list and click the Reset button.

8. In the Settings list, locate the ActiveX controls and plug-ins and select the following options (See Figure 5-4):

   • Download signed ActiveX controls – Enable

   • Run ActiveX controls and plug-ins – Enable

9. Click the OK button to close the Security settings options. If you are asked "Are you sure...?", click Yes and continue.

10. On the Internet Options window, click Apply to change the settings.

11. On the Internet Options window, select the Connections tab.

   a. Click the LAN Settings... button.

   b. Ensure that the "Use a Proxy Server" check box is not selected.
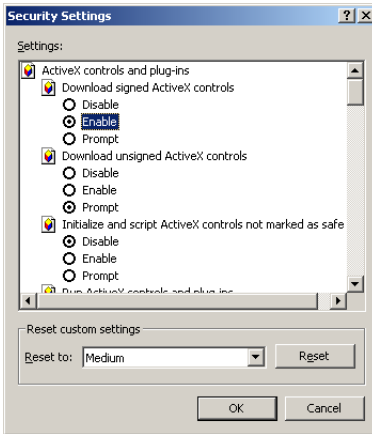
Figure 5-4 ActiveX Security Settings

☑ ***Note***

The "Use a Proxy Server" check box must be cleared to connect to the Companion XL.

---

    c. Click OK to close the LAN settings window.

12. Click OK to close the window.

13. Shut down the computer.

5.2.3 Start Direct Communications

1. Connect the Windows 2000 computer to the Companion XL using the blue cross-over cable (P/N 480-6545-02).

2. Turn the Companion XL's power switch to ON. Wait for the second green light (Ready), and then start the computer.

3. Log in to the computer using an account with administrator privileges.

☑ ***Note***

Logging in with administrator privileges is necessary to register PeakTrak software components (during step 6) on the computer so that all user accounts on that computer will be able to connect to the Companion XL.

Windows 2000

4. Start Internet Explorer and type in the address "http://192.168.1.51/login". The browser will display the PeakTrak Login screen.

☑ *Note*

The PeakTrak Login screen indicates that the direct connection is working.

---

5. Enter the login password for the Companion XL. The Companion XL is shipped with the default password of "companion" (all lower-case). Click the submit button.

☑ *Note*

The default password may be changed after you have established the connection. Refer to the Companion XL's Help documentation after you have completed the connection.

---

6. The Companion XL begins to download the necessary files for operation.

7. When the download is complete, the Companion XL will display the PeakTrak Main window. The title bar will read "Companion Powered by PeakTrak."

☑ *Note*

Some versions of Windows operating system will require the computer to be restarted before new ActiveX plug-ins can run. If you are notified that the computer must be restarted, you may do so now. After the computer restarts, complete steps 4 and 5 again to reach the PeakTrak Main window.

The Companion XL and the computer are now configured as a stand-alone system. Refer to PeakTrak's on-line help for operating instructions. Abbreviated instructions can be found in Section 8 of this guide.

If you want to add the Companion XL to the network, proceed with Section 7 of this installation guide.

Combi*Flash*® Companion® XL Installation Guide

Section 6 Direct Connection with Windows XP

This section provides instructions for establishing direct communications with the Combi*Flash* Companion XL from a computer with Windows XP operating system.

6.1 Windows XP Computer Requirements

Minimum System Requirements:

- 266 MHz Pentium processor
- 64 MB RAM
- Ethernet Port
- TCP/IP services installed
- SVGA or better graphics, minimum screen area of 800×600 pixels
- Microsoft Windows XP Professional
- Microsoft Internet Explorer 5.5 or later

☑ *Note*

The procedures described in this section will require a user account on the PC with Administrator privileges. If your user account does not have administrator privileges, contact your IT department before proceeding.

6.2 Establishing a Direct Connection

Sections 6.2.1 through 6.2.3 configure the computer so that it can communicate with the Companion XL. After completing the steps, the computer and Companion XL may be operated as a stand-alone system, or the direct connection may be used to configure the Companion XL so that it can be added to a network (see Section 7).

Windows XP

6.2.1 Configure the Computer's Local Area Network

1. From the Windows Start button, open the Control Panel.

2. Locate the Network Connection icon and open this control panel.

3. Highlight the "LAN or High-speed Internet Connection" icon. Select the "Change settings of this connection" option, or right-click and select "Properties." Refer to Figure 6-1.
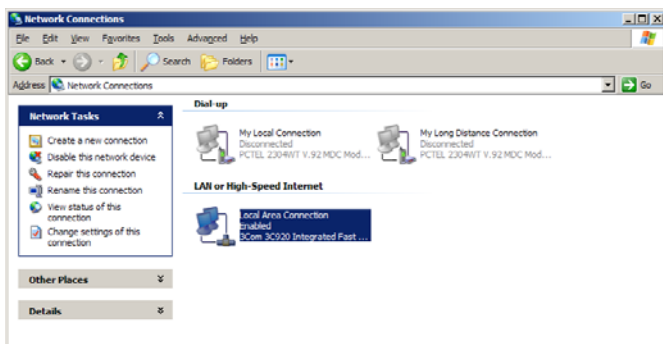
Figure 6-1 LAN or High-speed Internet Connection
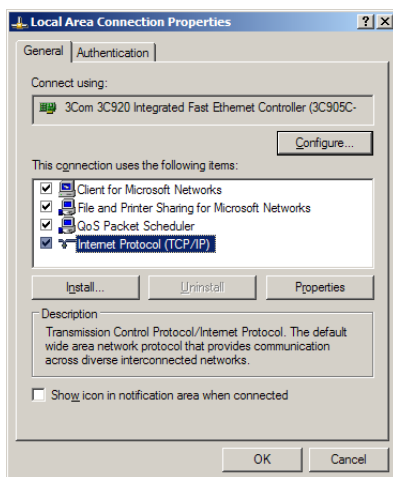
Figure 6-2 Local Area Connection Properties
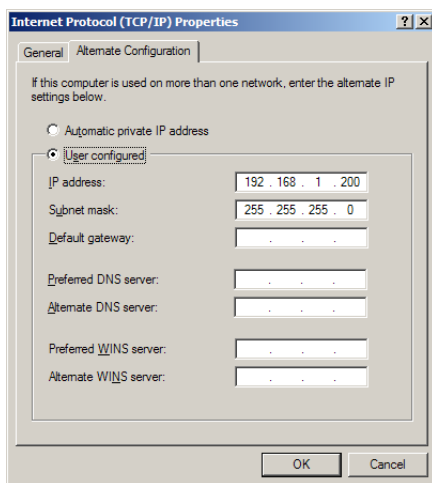
Figure 6-3 Alternate Configuration Settings

4. Highlight the "Internet Protocol (TCP/IP)" item in the list, and click on the "Properties" button. Refer to Figure 6-2.

5. Select the Alternate Configuration tab. Click the "User Configured" option. See Figure 6-3.

6. Enter the IP address "192.168.1.200".

7. Enter the Subnet Mask. Enter the default Subnet Mask, "255.255.255.0."

8. Click the OK button to close the Internet Protocol properties window. Click the Close button to close the Local Area Connection properties window.

6.2.2 Configure the Computer's Internet Browser Options

☑ *Note*

Attention Microsoft Internet Explorer 7 Users:
Before connecting to the Companion XL, run the preinstaller tool. Refer to instruction sheet 60-5232-099.

1. Start Internet Explorer.

2. From the File menu, select "Work Offline."
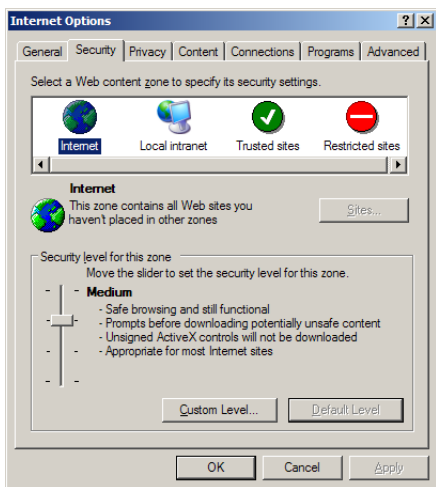
Windows XP

Figure 6-4 Default Internet Security Settings

3. From the Internet Explorer window, select the "Tools>Internet Options..." menu command.

4. Select the Security tab on the Internet Options window.

5. Highlight the Internet icon.

6. Click the "Custom Level" button. The Security Settings options will appear.

7. In the Reset Custom Settings box, select "Medium" from the pull-down list and click the Reset button.

8. In the Settings list, locate the ActiveX controls and plug-ins and select the following options (See Figure 6-4):

   • Download signed ActiveX controls – Enable

   • Run ActiveX controls and plug-ins – Enable

9. Click the OK button to close the Security settings options. If you are asked "Are you sure...?", click Yes and continue.

10. On the Internet Options window, click Apply to change the settings.
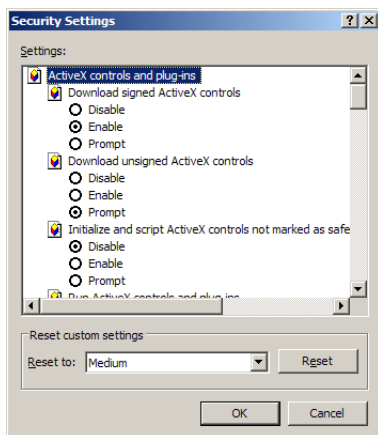
Figure 6-5 ActiveX Security Settings

11. On the Internet Options window, select the Connections tab.

   a. Click the LAN Settings... button.

   b. Ensure that the "Use a Proxy Server" check box is not selected.

☑ *Note*

The "Use a Proxy Server" check box must be cleared to connect to the Companion XL.

   c. Click OK to close the LAN settings window.

12. Click OK to close the window.

13. Shut down the computer.

6.2.3 Start Direct Communications

1. Connect the Windows XP computer to the Companion XL using the blue cross-over cable (P/N 480-6545-02).

2. Turn the Companion XL's power switch to ON. Wait for the second green light (Ready), and then start the computer.

3. Log in to the computer using an account with administrator privileges.

Windows XP

☑ *Note*

Logging in with administrator privileges is necessary to register PeakTrak software components (during step 6) on the computer so that all user accounts on that computer will be able to connect to the Companion XL.

4. Start Internet Explorer and type in the address "http://192.168.1.51/login". The browser will display the PeakTrak Login screen.

☑ *Note*

The PeakTrak Login screen indicates that the direct connection is working.

5. Enter the login password for the Companion XL. The Companion XL is shipped with the default password of "companion" (all lower-case). Click the submit button.

☑ *Note*

The default password may be changed after you have established the connection. Refer to the Companion XL's Help documentation after you have completed the connection.

6. The Companion XL begins to download the necessary files for operation.

7. When the download is complete, the Companion XL will display the PeakTrak Main window. The title bar will read "Companion Powered by PeakTrak."

The Companion XL and the computer are now configured as a stand-alone system. Refer to PeakTrak's on-line help for operating instructions. Abbreviated instructions can be found in Section 8 of this guide.

If you want to add the Companion XL to the network, proceed with Section 7 of this installation guide.

Combi*Flash*® Companion® XL Installation Guide

Section 7 Networking

This section provides instructions for adding the Combi*Flash* Companion XL to a local area network and connecting to it from a Windows computer.

> ☑ *Note*
>
> The procedures described in this section will require a user account on the PC with Administrator privileges. These procedures will also require assistance from your network administrator. Contact your IT department before proceeding.

7.1 Establish a Direct Connection

Before proceeding with configuring the Companion XL for the local area network, you must be directly communicating with the Companion XL using one of the methods described in sections 3 through 6, according to the operating system of the selected computer.

7.2 Configuring the Companion XL for Networking

Sections 7.2.1 and 7.2.2 provide instructions for adding the Companion XL to the local area network. After it is recognized by the network, you may connect to the Companion XL using the instructions in section 7.2.3.

7.2.1 Assign the Companion XL's Network Address

1. If open, close PeakTrak by selecting the File>Exit menu command.

2. Start Internet Explorer and browse for the address "http://192.168.1.51/config".

   The Configuration screen allows you to set:

   - **Enter IP Address** – Use this to change the Companion XL's IP address to one within the local

area network. The IP address is assigned by your
network administrator.

- **Enter Netmask** – Use this to change the
  Companion XL's Netmask setting. The Netmask is
  assigned by your network administrator.

- **Enter Gateway Address** – Use this to set a gateway
  for the Companion XL. The gateway is assigned by
  your network administrator.

Alternatively, you can select the "Use DHCP Only" check
box. Before using DHCP, confirm that the network can
automatically handle Linux address requests. Additionally,
the network administrator must be able to manually asso-
ciate the MAC address in the DNS server table.

If using DHCP, it is important to:

- configure the DHCP lease as "infinite."

- associate the Companion XL's MAC Address with a
  unique name on the network.

☑ *Note*

A label on the Companion XL's back panel lists the instrument's
MAC Address.

For example, when using DHCP the Companion XL could
be assigned the name "My_Companion." User's would then
access the instrument through the address
"http://My_Companion."

3. After entering the settings that meet the requirements of
   your network, click the Update button to apply the
   settings.

4. The screen advances and displays the old and new
   addresses. Record this information.

7.2.2 Install Network Cable

1. Turn the Companion XL's power switch to OFF.

2. Disconnect the blue crossover cable from the Companion XL. (This cable may only be used for direct connections.)

3. Connect the Companion XL to the local area network using the beige Ethernet cable (P/N 480-6545-01). This is a 10 foot long Category 5 Ethernet cable, terminated with RJ-45 connectors.

☑ *Note*

The computer used for direct connection to the Companion XL may be returned to its original configuration at this time.

7.2.3 Establish Communications through the Local Area Network

1. Turn the Companion XL's power switch to ON. Wait for the second green light (Ready) to illuminate.

2. From any network computer within the same domain and workgroup (consult your network administrator), log in to computer using an account with administrator privileges.

☑ *Note*

Logging in with administrator privileges is necessary to register PeakTrak software components (during step 14) on the local computer so that all user accounts on that computer will be able to connect to the Companion XL.

☑ *Note*

The computer must meet the minimum requirements specified in Table 7-1.

☑ *Note*

Attention Microsoft Internet Explorer 7 Users:
Before connecting to the Companion XL, run the preinstaller tool. Refer to instruction sheet 60-5232-099.

Table 7-1 Minimum Computer Requirements	
Compatible Operating Systems	Windows 98 Windows NT4 Windows 2000 with Service Pack 3 Windows XP Professional
Processor	Pentium class, 266 MHz minimum
Memory	Must meet Microsoft's minimum recommended RAM for the selected operating system.
Display	SVGA, 800 x 600 pixels, minimum
Internet Browser	Microsoft Internet Explorer 5.5 or later ActiveX Enabled
Network Protocol	TCP/IP installed
Network Connection	Ethernet 10/100 Base-T

3. Start Internet Explorer.

4. From the Internet Explorer window, select the "Tools>Internet Options..." menu command.

5. Select the Security tab on the Internet Options window.

6. Highlight the Internet icon.

7. Drag the slider to the Medium Security Level. Click the Apply button.

8. Click the "Custom Level" button. The Security Settings options will appear. See Figure 7-1.

9. Locate the ActiveX controls and plug-ins and select the following options (refer to Figure 7-2):

   • Download signed ActiveX controls – Enable

   • Run ActiveX controls and plug-ins – Enable

10. Click the OK button to close the Security settings options.

11. On the Internet Options window, apply the setting and click OK to close the window.
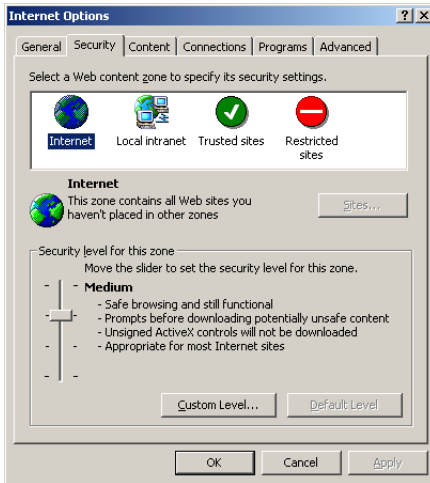
Figure 7-1 Default Internet Security Options
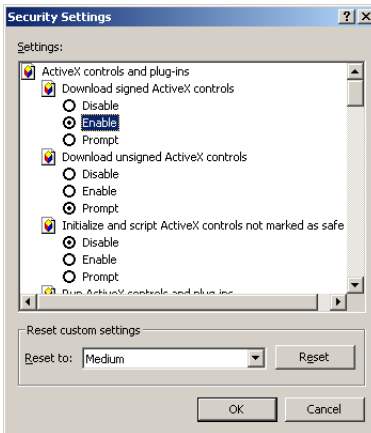
Figure 7-2 ActiveX Security Settings

12. In Internet Explorer, type in the Companion XL's address assigned by your network administrator "http://_____/login". The browser will display the PeakTrak login screen.

☑ *Note*

The PeakTrak Login screen indicates that the Companion XL has been successfully added to the local area network.

13. Enter the login password for the Companion XL.

14. The Companion XL begins to download the necessary files for operation.

15. When the download is complete, the Companion XL will display the PeakTrak Main window. The title bar will read "Companion Powered by PeakTrak."

☑ *Note*

Some versions of Windows operating system will require the computer to be restarted before new ActiveX plug-ins can run. If you are notified that the computer must be restarted, you may do so now. After the computer restarts, complete steps 11 and 12 again to reach the PeakTrak Main window.

Combi*Flash*® Companion® XL Installation Guide

Section 8 Operation

This section provides abbreviated operating instructions for the Companion XL. For complete instructions, refer to PeakTrak's on-line help.

8.1 Installing a Collection Rack

Before beginning a run, you must load collection tubes on the Foxy 200. To do so:

1. Select racks. Your system was shipped with two racks that hold 25 mm diameter tubes (P/N 68-2137-045). Several racks are available:

   - Foxy Rack, 16 mm diameter tubes (100), P/N 68-2137-043

   - Foxy Rack, 18 mm diameter tubes (72), P/N 68-2137-044

   - Foxy Rack, 28 mm diameter scintillation vials (36), P/N 68-2137-046

   - Foxy microfunnel tray to channel drops with 12 or 13 mm tube racks. Pkg of 10. P/N 68-2137-013

   - Foxy 200 Prep Rack (26 Halar funnels that allow unlimited samples sizes). P/N 68-2137-095

☑ **Note**

The Foxy 200 will hold two tube/vial racks, two microfunnel trays, or one prep rack. Additionally, eighteen 400 ml bottles, 500 ml bottles, or 150 ml beakers can be used. Refer to the Foxy 200 Instruction Manual for correct bottle placement on the drip tray.

---

2. Insert the tubes or vials into the racks.

3. Place the racks on the Foxy 200 (Figure 8-1).

4. If this is the first time the system has been used, or if a different rack has been selected, verify the configuration setting. Do this by selecting the "Tools>Configuration" PeakTrak's menu command. Ensure the PeakTrak Hardware Configuration window setting matches the selected rack.

Figure 8-1 Loading the racks

8.2 Prime the Solvent Lines

Before proceeding, verify that the solvent, waste, and drain lines have been connected according to Section 2.5.

1. Start PeakTrak by logging in to the Companion XL.

2. From PeakTrak's Main Window, select the "Tools>Auto prime" menu command.

3. Ensure that a priming tube is inserted between the upper and lower column mounts. The priming tube must be connected to the smaller fittings used for 120–330g columns.

☑ *Note*

A priming tube is a piece of tubing with Luer connectors that attach between the column mounts, bypassing the column. The Companion XL is shipped with a priming tube installed.

4. Click the "Ok" button to start priming the system.

   The Companion XL primes pump B, then pump A.

5. When finished, PeakTrak notifies you that the "AutoPrime" process has completed successfully." Click the "Ok" button to close the window.

8.3 Loading a Redi*Sep* Column

To load a Redi*Sep* column:

1. Select a Redi*Sep* column. Generally, the column is selected based on the size of the sample. Refer to Table 8-1 for recommended column sizes.

2. After selecting a column, note its flow direction. The flow direction on Redi*Sep* columns is the same direction the label is read. When installed, the inlet will be mounted upward.

3. Select the correct column fittings. There are two sets of fittings. Columns ranging from 120g to 330g use the smaller Luer fittings (see Figure 8-2). Larger columns use the larger diameter fittings.

4. Raise the top column mount and insert the Redi*Sep* column into the upper fitting for the selected column size.

5. Slowly release the upper column mount while aligning the lower column fitting. Give the column a slight twist to seat the column in its upper and lower fittings.

Table 8-1 Recommended Normal Phase RediSep Columns	
Sample Size	**RediSep Column**
0.12 – 12g Samples	Use the RediSep 120 g column. RediSep 120g Normal Phase columns can be ordered in packages of 10. (Teledyne Isco Part Number 68-2203-024)
0.33 – 33g Samples	Use the RediSep 330 g column. RediSep 330g Normal Phase columns can be ordered in packages of 4. (Teledyne Isco Part Number 68-2203-058)
0.75 – 75g Samples	Use the RediSep 750g column. RediSep 750g Normal Phase columns can be ordered in packages of 4. (Teledyne Isco Part Number 68-2203-275)
1.5 – 150g Samples	Use the RediSep 1500g column. RediSep 1500g Normal Phase columns can be ordered in packages of 3. (Teledyne Isco Part Number 68-2203-277)
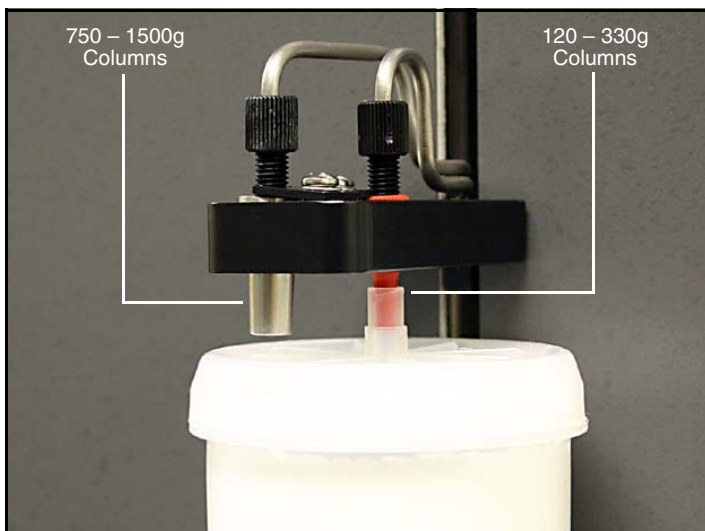
Figure 8-2 Large and small column fittings

Figure 8-3 Loading a 330g RediSep Column

☑ *Note*

PeakTrak will automatically detect the column size. The detected column size is displayed on the PeakTrak Main and PeakTrak Advanced Program windows.

8.4 Prepare the Sample

Before starting the run, the sample should be prepared for introduction to the column. The Companion XL supports three methods that introduce the sample: liquid sample injection, solid sample cartridges, and loading sample directly onto the column.

8.4.1 Liquid Sample Injection

Before starting a separation using a liquid injection, the Liquid Injection accessory kit (60-5244-050) must be installed on the system.

1. Remove the Solid Sample Load Cartridge cap and its tubing from the bulkhead fitting on the front of the Companion XL.

2. Screw the Swagelok plug (209-0165-21) from the accessory kit onto the bulkhead fitting and finger tighten (see Figure 8-4). Then, using a $^7/_{16}$" wrench, tighten the plug $^3/_4$ of a turn.

Figure 8-4 Plug sealing the Solid Sample Cartridge bulkhead fitting

3. Insert the Liquid Inject accessory into the lower sample injection port. Turn the valve on the Liquid Inject accessory so that it is perpendicular to the tubing (closed).

After installing the accessory, the Companion XL is ready for liquid injections. To perform a run using a liquid injection:

1. Select "Liquid" as the Sample type from PeakTrak's Main window (Figure 8-5).
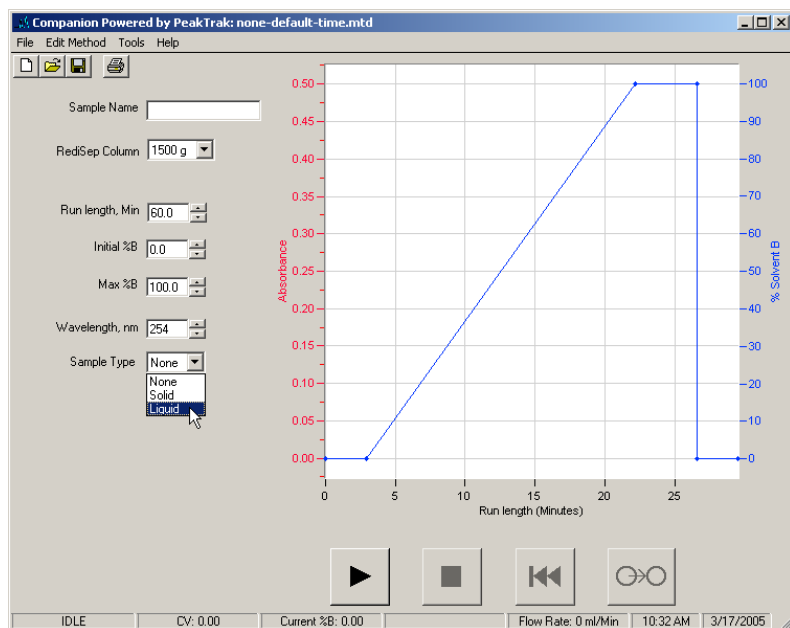
Figure 8-5 Sample Type set for Liquid on PeakTrak's Main window

2. When all settings have been configured, click the Play button to start the run. After column equilibration, the system pauses for the liquid injection (Figure 8-6).

3. Inject the Liquid Sample:

   a. Connect a syringe containing the compound mixture to the Liquid Injection accessory's luer fitting. This fitting is located above the valve (Figure 8-7).

   b. Open the valve by turning the handle so it is in line with the tubing (Figure 8-7).

   c. Inject the liquid compound mixture.

   d. Close the valve by turning the handle so that it is perpendicular to the tubing. Remove the syringe.
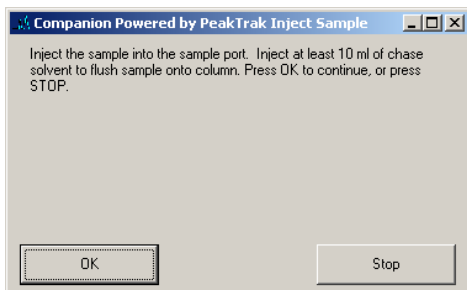
Figure 8-6 Inject Sample display

> ☑ **Note**
>
> Chase solvent clears the Liquid Injection accessory tubing and forces the liquid compound mixture onto the column. Without the chase solvent, some of the sample will remain in the tubing and will not be separated. This small amount of sample may also cross-contaminate the next purification run.
>
> The chase solvent should be strong enough to prevent the sample from precipitating (or crashing), but not so strong as to adversely affect the separation of compounds. Often, the initial liquid phase solvent is a practical chase solvent.

4. Inject a chase solvent:

   a. Connect a syringe loaded with a chase solvent to the Liquid Injection accessory's luer fitting.

   b. Open the valve by turning the handle so it is in line with the tubing (Figure 8-7).

   c. Inject at least 10 mL of the chase solvent.

   d. Close the valve by turning the handle so that it is perpendicular to the tubing. Remove the syringe.

5. Click the OK button to continue the run.
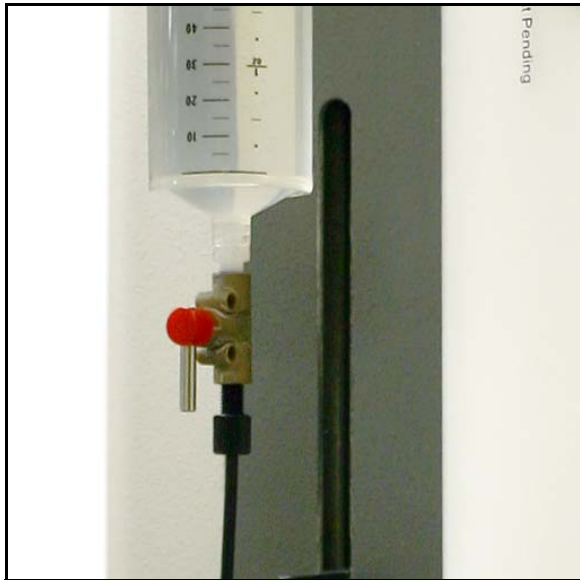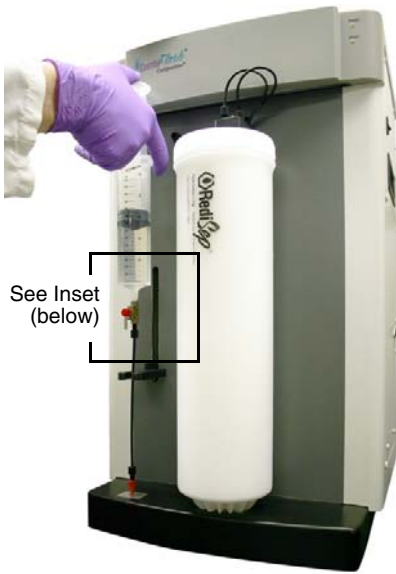
Figure 8-7 Syringe connected to the Liquid Injection accessory

8.4.2 Solid Sample Cartridges

Solid sample cartridges are practical when there is a need to introduce a low-solubility sample onto the column. The cartridge holds the prepared sample. After equilibration, the Companion XL changes the fluid path so that the mobile phase passes through the cartridge and onto the column.

This solid sample should be prepared and loaded according to the on-line help topic "Preparing Solid Samples."

After loading the prepared media in the cartridge, place a frit on top of the media. Then:

1. Insert the plunger on the cartridge cap until it rests against the frit. If more length is needed, the cap will slide along the plunger shaft if you press the spring-loaded tab.

2. Align the top of the cartridge with the opening on the cap (Figure 8-8).

3. Press the tab and slide the cap over the top of the cartridge (Figure 8-9).

4. Turn the cap $^{1}/_{4}$-turn and release the tab.

5. Load the solid sample cartridge on the sample injection port (Figure 8-10).

Figure 8-8 Inserting the plunger
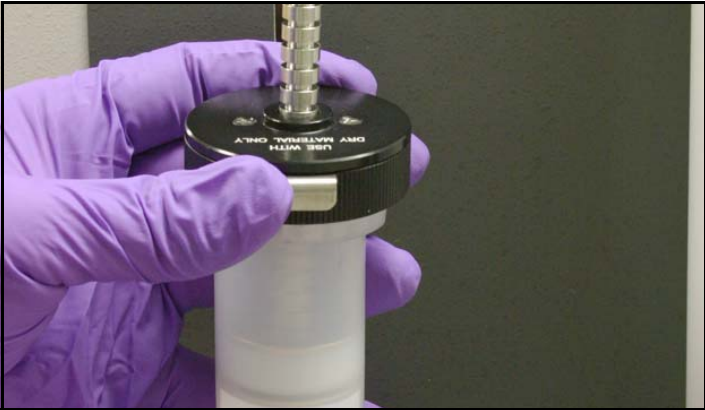
Figure 8-9 Fitting the cap on the cartridge

Figure 8-10 Installing the solid sample cartridge

8.4.3 Direct Loading a Sample

Direct loading places the sample mixture on the column media. If using this technique, remove the column inserted in section 8.3 of these instructions. Then, transfer the mixture onto the column through the inlet fitting and re-insert the column. The sample is typically transferred onto the top of the column media using a syringe.

☑ *Note*

Equilibrating the column will wash away the sample before the purification run. When direct loading samples, always set the "Sample Load" on PeakTrak's main window to "Direct" to prevent losing the sample during column equilibration.

8.5 Start a Default Method

With PeakTrak operating and the solvent lines primed, you are now ready to perform a run using the default settings. These default settings are preset to the most common configurations used by chemists, and have been optimized for the use of Redi*Sep* columns on the Companion XL. The default settings will:

- equilibrate the column

- collect all fluid in the fraction collector rack

- differentiate UV and waste fluid and place the fluids in separate tubes

- determine a peak based on slope detection or level threshold.

To initiate the run from the PeakTrak Main window:

1. Click on the "New" toolbar button.

2. Enter a sample name. If you choose not to, PeakTrak will enter the date and time for the sample name when you start the run.

3. Review the PeakTrak Main window settings. If you desire to change any settings, refer to the Editing a Method on-line help topic.

4. Verify the Sample Load setting on PeakTrak's main window selects the correct option for the run.

- Liquid—Select this option when you will be injecting a liquid sample into the injection port.

- Solid—Select this option when you will be using a solid sample cartridge.

- Direct—This option is useful when a sample is direct loaded on the column media. When this option is selected, the Companion XL skips the column equilibration and proceeds with the purification run.

5. Click the Play button.

PeakTrak will list the minimum solvent and tube quantities necessary for the run. At this time you can also specify which tube in the rack to begin with. Ensure that the requirements are met, set the first tube, and click OK.

If the Sample Type was set for Liquid or Solid, the Companion XL then equilibrates the column with the initial conditions.

After equilibrating, the system will pause if you selected the Liquid option for the Sample Type. This pause waits for you to inject the sample. Click OK to continue the run.

If you selected the Solid option for the Sample Type, the system proceeds with the purification after equilibrating the column if a cartridge is present. If a cartridge is not present, the system will pause for the user to load the cartridge.

8.6 Operation During the Purification Run

After injecting the sample, the Companion XL delivers the first 3 mL of liquid into the first tube, then advances to the next tube. This clears the line of eluant held in the drop former tube from a previous run.

You may allow Companion XL to proceed with the run while monitoring the progress on the PeakTrak Main window. If desired, gradient parameters may be modified during the run. (See the Real-time Gradient Editing on-line help topic.)

As the run progresses, the absorbance trace is drawn on the Gradient Plot area. The separation or purification continues until the end of the run defined by the run length setting, expressed in Column Volumes.

Combi*Flash*® Companion® XL Installation Guide

Section 9 Maintenance

9.1 Cleaning

For general cleaning of the enclosure, use distilled water with a mild detergent. Use isopropyl alcohol for tougher stains.

On printed areas, such as the rear panel, avoid rubbing vigorously or using aggressive solvents like acetone. Each will ruin the printed text.

⚠ CAUTION

Do not immerse the instrument in a water bath. The instrument is not watertight and this action could damage the internal electronics.

9.2 Tubing Inspection

⚠ WARNING

Risk of fire or equipment damage. Faulty tubing, fittings, and drains may allow organic solvents to pool in unsafe areas, creating a potential for dangerous levels of flammable vapors.

Visually inspect the solvent, waste, and drain tubing monthly. The tubing must be free of any damage, kinks, or deterioration. Fittings should show no signs of leaks.

The top shelf drain and Foxy 200 drain should also be inspected at this time. These drain holes should be clear of any debris.

Correct any deficiencies before returning the instrument to operation.

9.3 Troubleshooting

9.3.1 Electrical

1. If your instrument stops working and the front panel status LEDs (Power and Ready) are off, check the line cord connection.

2. If the line cord is connected properly, check the fuses in the power input module located on the Companion XL's rear panel. These are time delay fuses (T-type) and rated according to the mains input power voltage:

   • 100 to 129 VAC mains input: 2.0 A fuse

   • 215 to 264 VAC mains input: 1.0 A fuse.

Always replace with the same type.

9.3.2 Inaccessible fuses

> ⚠ **WARNING**
>
> **Risk of electrical shock. Disconnect the electrical power before opening the rear panel or otherwise gaining access inside the equipment. Only trained service personnel may gain access to the interior.**

Upper and Lower Power Supply – The internal power supplies are fused. However, these fuses are not serviceable. Replace the power supply unit if it fails.

9.3.3 Internal Battery

> ⚠ **WARNING**
>
> **Risk of electrical shock. Disconnect the electrical power before opening the rear panel or otherwise gaining access inside the equipment. Only trained service personnel may gain access to the interior.**

If the date is wrong on the data graphs generated by the Companion XL, it is likely that the internal battery needs replacing. This battery is located on the CPU motherboard (upper deck). Replace this battery with a 3.0 V Lithium, part number CR2032. Dispose of the old battery in accordance with federal, state, and local laws.

9.4 Flow Cell Cleaning

The Companion XL may alert you that flow cell cleaning is recommended. This alert message appears when flow cell light path is partially obstructed but the system is still operable.

Cleaning the flow cell will keep the amount of noise and drift on the absorbance trace at a minimum and ensure accurate peak detection.

The flow cell can be cleaned by pumping a solvent through the system. Generally, the recommended solvent is the highest polarity solvent you have recently used. Therefore, ethyl acetate (often solvent B) would be used. See Table 9-4 for alternative solvents. Recent synthesis solvents should also be considered.

9.4.1 Quick Flow Cell Cleaning

Quick cleaning is advantageous because very little solvent is required and repriming is not necessary. To quick clean the system:

1. Remove the column from the system.

2. With a syringe, inject the selected solvent into the lower column mount.

3. Insert a bypass tube in place of the column.

4. From the PeakTrak menu select the Tools>Manual Control… command and pump 100 mL of Solvent A at 100 mL/min.

5. Replace the bypass tube with a column and start a run. The Companion XL will attempt to calibrate the flow cell.

   If the calibration is successful, the system is ready for use.

   If the alert message persists, refer to the thorough flow cell cleaning solvents and techniques.

9.4.2 Thorough Flow Cell Cleaning

To thoroughly clean the flow cell:

1. Remove the column from the system and insert a bypass tube.

2. If using an alternative solvent, place the solvent inlet line into a container of the selected solvent.

Table 9-1 Suggested Flow Cell Cleaning Solvents[a]	
Solvent	**Description**
Methanol	Miscible with most LC solvents. It will force other solvents through the system so that they will not interfere with the next sample. Breaks down the tertiary structure of silica and allows it to flush through.
Acetone	Common organic solvent with high dissolving properties.
Dichloromethane (DCM)	Effective at solubilizing organic molecules.
Dimethylsulfoxide (DMSO)	Strong solvent that will clear organic sample.
Dimethylformamide (DMF)	Strong solvent if other solvents do not produce the desired results.
Tetrahydrofuran (THF)	Strong solvent.
Mildly acidic aqueous solution	0.5M acetic acid in distilled water can be used to clear samples that are not removed by organic solvents.
Mildly basic aqueous solution	A dish-type detergent solution can wash through particulates not picked up by the acidic solution. The emulsification effect of detergent is an effective tool as well to help wash through oily samples. Follow the detergent with several minutes of clean, distilled water.

a. Always handle solvents in accordance with the manufacturer's or supplier's MSDS.

3. Pump 100 ml of solvent through the system at 100 mL/min.

4. If an alternative solvent was used, return the solvent inlet line to the appropriate solvent container.

5. Select the Tools>Auto Prime menu command to prime the system.

6. Replace the bypass tube with a column and start a run. The Companion XL will attempt to calibrate the flow cell.

   If the calibration is successful, the system is ready for use.

   If the alert message persists, refer to the alternative flow cell cleaning solvents and techniques.

The solvent strength and high flow rate will typically clear the obstruction and return the flow cell to optimum performance.

9.4.3 Alternative Cleaning Techniques

If the thorough flow cell cleaning instructions do not clear the obstruction, the following alternative techniques should be considered.

• Pump water/DMF/methanol (50/25/25) for 3–4 minutes followed by pumping straight methanol (or ethanol) for 2–3 minutes.

• Pump 5–10 mL DMSO followed by methanol, ethyl acetate, then hexane.

• After the lines have been filled with solvent, reduce the flow rate or pause up to 18 hours. Doing so will allow the solvent to remain longer to dissolve the obstruction.

产品中有毒有害物质或元素的名称及含量

Name and amount of Hazardous Substances or Elements in the product

部件名称 Component Name	有毒有害物质或元素 Hazardous Substances or Elements					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二联苯 (PBDE)
线路板 Circuit Boards	X	O	O	O	O	O
接线 Wiring	O	O	O	O	X	O
内部电缆 Internal Cables	O	O	O	O	X	O
主电源线 Line Cord	O	O	O	O	X	O
步进电机 Stepper Motor	X	O	O	O	X	O
氘气灯 Deuterium Lamp	O	O	X	O	O	O
阀体 Valve Body	O	O	O	O	X	O

产品中有毒有害物质或元素的名称及含量：Name and amount of Hazardous Substances or Elements in the product

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在ST/ 标准规定的限量要求以下。

O: Represent the concentration of the hazardous substance in this component's any homogeneous pieces is lower than the ST/ standard limitation.

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出ST/ 标准规定的限量要求。

(企业可在此处，根据实际情况对上表中打"X" 的技术原因进行进一步说明。)

X: Represent the concentration of the hazardous substance in this component's at least one homogeneous piece is higher than the ST/ standard limitation.
(Manufacturer may give technical reasons to the "X"marks)

环保使用期由经验确定。

The Environmentally Friendly Use Period (EFUP) was determined through experience.

生产日期被编码在系列号码中。前三位数字为生产年(207 代表2007年) 。随后的一个字母代表月份：A

为一月，B为二月，等等。

The date of Manufacture is in code within the serial number. The first three numbers are the year of manufacture (207 is year 2007) followed by a letter for the month. "A" is January, "B" is February and so on.

产品中有毒有害物质或元素的名称及含量

Name and amount of Hazardous Substances or Elements in the product

部件名称 Component Name	有毒有害物质或元素 Hazardous Substances or Elements					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二联苯 (PBDE)
液晶显示 LCD Display	O	X	O	O	O	O
线路板 Circuit boards	X	O	O	O	O	O
接线 Wiring	O	O	O	O	X	O
内部电缆 Internal Cables	O	O	O	O	X	O
主电源线 Line Cord	O	O	O	O	X	O
步进电机 Stepper Motor	X	O	O	O	X	O
氘气灯 Deuterium lamp	O	O	X	O	O	O
阀体 Valve Body	O	O	O	O	X	O

产品中有毒有害物质或元素的名称及含量：Name and amount of Hazardous Substances or Elements in the product

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在ST/ 标准规定的限量要求以下。

O: Represent the concentration of the hazardous substance in this component's any homogeneous pieces is lower than the ST/ standard limitation.

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出ST/ 标准规定的限量要求。

(企业可在此处，根据实际情况对上表中打"X" 的技术原因进行进一步说明。)

X: Represent the concentration of the hazardous substance in this component's at least one homogeneous piece is higher than the ST/ standard limitation.
(Manufacturer may give technical reasons to the "X"marks)

环保使用期由经验确定。

The Environmentally Friendly Use Period (EFUP) was determined through experience.

生产日期被编码在系列号码中。前三位数字为生产年(207 代表2007年) 。随后的一个字母代表月份：A

为一月，B为二月，等等。

The date of Manufacture is in code within the serial number. The first three numbers are the year of manufacture (207 is year 2007) followed by a letter for the month. "A" is January, "B" is February and so on.

DECLARATION OF CONFORMITY

$C\,\epsilon$

ISM1-A

Application of Council Directive:	89/336/EEC – The EMC Directive
	73/23/EEC – The Low Voltage Directive
Manufacturer's Name:	Teledyne Isco, Inc.
Manufacturer's Address:	4700 Superior, Lincoln, Nebraska 68504 USA
	Mailing Address: P.O. Box 82531, Lincoln, NE 68501
Equipment Type/Environment:	Laboratory Equipment for Light Industrial/Commercial Environments
Trade Name/Model No:	CombiFlash Companion XL with Touch screen and Foxy 200
Year of Issue:	2004
Standards to which Conformity is Declared:	EN 61010-1 Safety Requirements for Electrical Equipment for
	Measurement, Control, and Laboratory Use
	EN 61326:1998 EMC Requirements for Electrical Equipment for
	Measurement, Control, and Laboratory Use

Standard	Description	Severity Applied	Performance Criteria
EN61000-4-2	Electrostatic Discharge	Level 2 - 4kV contact discharge Level 3 - 8kV air discharge	A
EN61000-4-3	Radiated RF Immunity	80 MHz to 1000MHz 80% AM at 1kHz Level 2 - 3V/m	A
EN61000-4-4	Electrical Fast Transient	Level 2 - 1kV on AC lines	A
EN61000-4-5	Surge on AC Lines	Level 2 - 1kV common mode, Level 2 - 0.5KV differential mode	A
EN61000-4-6	Conducted RF on AC lines	150 kHz to 80 MHz, Level 1 - 1V rms, 80% modulated	A
EN61000-4-11	Voltage Dips/Short Interruptions	100% drop, 10ms	A
CISPR11/ EN 55011	RF Emissions	Group 1, Class A Industrial, Scientific, and Medical Equipment	
EN61000-3-2, 3-3	Harmonic and Flicker		

We, the undersigned, hereby declare that the design of the equipment specified above conforms to the above Directive(s) and Standards as of October 10, 2004.

William Foster

Bill Foster
USA Representative

Teledyne Isco Inc.

Bill Foster
Director of Engineering
Teledyne Isco, Inc.
4700 Superior Street
Lincoln, Nebraska 68504

Phone: (402) 464-0231
Fax: (402) 464-4543

60-5242-008 **Rev A**

Teledyne Isco One Year Limited Warranty*

Factory Service for Teledyne Isco CombiFlash® Systems

This warranty exclusively covers Teledyne Isco CombiFlash® instruments, providing a one-year limited warranty covering parts and labor.

Any instrument that fails during the warranty period due to faulty parts or workmanship will be repaired at the factory at no charge to the customer. Teledyne Isco's exclusive liability is limited to repair or replacement of defective instruments. Teledyne Isco is not liable for consequential damages.

CombiFlash systems are designed to use Teledyne Isco RediSep columns. RediSep columns lead the industry in quality and performance. Customers may use other brands of columns on their CombiFlash instruments. These non-RediSep columns may fails to separate compounds, may leak silica into the flow path of the CombiFlash instrument, and may leak solvents from their fittings and seals.

Damage to CombiFlash instruments resulting from the failure of a non-RediSep column may cause the need for repairs that incur billable service activities. The customer is responsible for these charges.

Teledyne Isco will pay surface transportation charges both ways within the 48 contiguous United States if the instrument proves to be defective within 30 days of shipment. Throughout the remainder of the warranty period, the customer will pay to return the instrument to Teledyne Isco, and Teledyne Isco will pay surface transportation to return the repaired instrument to the customer. Teledyne Isco will not pay air freight or customer's packing and crating charges. This warranty does not cover loss, damage, or defects resulting from transportation between the customer's facility and the repair facility.

The warranty for any instrument is the one in effect on date of shipment. The warranty period begins on the shipping date, unless Teledyne Isco agrees in writing to a different date.

Excluded from this warranty are normal wear; expendable items such as charts, ribbon, lamps, tubing, and glassware; fittings and wetted parts of valves; and damage due to corrosion, misuse, accident, or lack of proper maintenance. This warranty does not cover products not sold under the Teledyne Isco trademark or for which any other warranty is specifically stated.

This warranty is expressly in lieu of all other warranties and obligations and Teledyne Isco specifically disclaims any warranty of merchantability or fitness for a particular purpose.

The warrantor is Teledyne Isco, Inc. 4700 Superior, Lincoln, NE 68504, U.S.A.

* This warranty applies to the USA and countries where Teledyne Isco Inc. does not have an authorized dealer. Customers in countries outside the USA, where Teledyne Isco has an authorized dealer, should contact their Teledyne Isco dealer for warranty service.

Before returning any instrument for repair, please call, fax, or e-mail the Teledyne Isco Service Department for instructions. Many problems can often be diagnosed and corrected over the phone, or by e-mail, without returning the instrument to the factory.

Instruments needing factory repair should be packed carefully, preferably in the original carton, and shipped to the attention of the service department. Small, non-fragile items can be sent by insured parcel post. **PLEASE BE SURE TO ENCLOSE A NOTE EXPLAINING THE DEFECT.**

Shipping Address:	Teledyne Isco, Inc. - Attention Repair Service 4700 Superior Street Lincoln NE 68504 USA
Mailing address:	Teledyne Isco, Inc. PO Box 82531 Lincoln NE 68501 USA
Phone:	Repair service: (800)775-2965 (lab instruments) (800)228-4373 (samplers & flow meters) Sales & General Information (800)228-4373 (USA & Canada)
Fax:	(402) 465-3001
Email:	iscoservice@teledyne.com **Web site:** www.isco.com

TELEDYNE ISCO
A Teledyne Technologies Company