Agilent IO Libraries
Suite 15.5 or higher

Installation and Configuration Instructions for use with the Agilent ChemStation Rev. B.04.03 or higher

Agilent Technologies
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This manual describes how to install and use the IO Libraries Suite 15.5.

1 Installing the Agilent IO Library Suite and Drivers

This chapter outlines the installation of the IO Library Suite which is necessary to control 82350 A/B GPIB cards as well as 82357 A/B USB-GPIB Interfaces. Secondly it outlines the installation and the configuration of these Cards and Interface Drivers.

2 Upgrading Existing IO Libraries

This chapter explains how to upgrade from existing IO Libraries to IO Libraries Suite

3 Additional Information regarding the Agilent IO Library Suite

This chapter outlines the changes made by the installation, and lists IO Services and Processes.

4 Installation troubleshooting

This chapter gives support in case of installation problems. In addition it gives instructions how to change or remove your installation.

5 Agilent IO Libraries Suite 15.5 Documentation

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This chapter outlines the installation of the IO Library Suite which is necessary to control 82350 A/B GPIB cards as well as 82357 A/B USB-GPIB Interfaces. Secondly it outlines the installation and the configuration of these Cards and Interface Drivers.
Prerequisites

To use the GPIB 82350A or 82350B Card, or the 82357 A/B USB-GPIB Interface, it is necessary to install or upgrade the corresponding driver and configuration software, located in the \IO_Libs directory on the Agilent ChemStation DVD or the Agilent GPIB Libraries for Instrument control CD-ROM. To install IO Libraries suite 15.5 proceed according to the steps described in this manual.

The Agilent ChemStation B.04.03 and greater requires version 15.5 of IO Libraries Suite. These libraries are supported under Windows XP Professional, Windows Vista and Windows 7.

Be sure to follow the correct installation description.

NOTE
Before installing the GPIB Interface Driver, verify that this communication component is supported for your instrument in use. Refer to the table below.

Table 1  Supported devices with the 82350 A/B GPIB Card

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Supports 82350A GPIB Card</th>
<th>Supports 82350B GPIB Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600 Capillary Electrophoresis</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7100 Capillary Electrophoresis</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1200/1100 modules</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1120/1220 Systems</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1260 Modules</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1290 Modules</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 4890 D GC</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Agilent 5890 II GC</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Agilent 6850 GC</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 6890A / 6890 Plus GC</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Prerequisites

- Agilent 6890N / 7820 / 7890A GC No No
- Agilent A/D Systems No No
- Agilent LC/MS Systems No No
- Agilent GC/MS Systems No No

#### Table 1 Supported devices with the 82350 A/B GPIB Card

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Supports 82350A GPIB Card</th>
<th>Supports 82350B GPIB Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agilent 6890N / 7820 / 7890A GC</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent A/D Systems</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent LC/MS Systems</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent GC/MS Systems</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Table 2 Supported devices with the 82357 A/B GPIB Interface

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Supports 82357A GPIB Interface</th>
<th>Supports 82357B GPIB Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600 Capillary Electrophoresis</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7100 Capillary Electrophoresis</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1200/1100 modules</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1120/1220 Systems</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1260 Modules</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 1290 Modules</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 4890 D GC</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Agilent 5890 II GC</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Agilent 6850 GC</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent 6890A / 6890 Plus GC</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Agilent 6890N / 7820 / 7890A GC</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent A/D Systems</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent LC/MS Systems</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agilent GC/MS Systems</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
1 Installing the Agilent IO Library Suite and Drivers

Installing the IO Library Suite 15.5

To establish the communication to your instrument using the IO Library suite, you need to perform the following steps:

1. Install IO Library Suite *before* connecting any USB-GPIB Interface or installing any new GPIB card. Otherwise disconnect your devices and remove the USB-GPIB Interfaces from your PC.
2 Re-connect your device and initialize/install your GPIB card/ USB-GPIB Interface Drivers.

3 Start the Agilent Connection Expert to configure your connection see “Configure the 82350 A/B GPIB Card or the 82357 A/B USB-GPIB Interface” on page 14.

NOTE
You must have administrator privileges to install the IO Library Suite and to run the Agilent Connection Expert later for configuration.

NOTE
IO Libraries Suite 15.5 requires Microsoft Visual C++ Redistributable, VISA Shared Components and IVI Shared Components to be installed prior the installation of the application. If these components are not present, they will be installed by the IO Library Suite automatically, before starting the IO Library Suite installation.

NOTE
IO Libraries Suite 15.5 requires Microsoft Framework to be installed prior the installation of the application. If the needed Microsoft Framework is not present, it will be installed by the IO Library Suite automatically, during the IO Library Suite installation. You will only need to install the .NET Framework once, even if you remove and reinstall or upgrade your 15.5 later.

1 Disconnect any USB/GPIB interface connected to your PC. Do not install any 82350A/B GPIB card prior the installation of the IO Library Suite.

2 Close all other applications on your PC.

3 Using the Windows Explorer, locate and start IOLibSuite_15_5_MR_EXE.exe in the IO_Libs directory of your ChemStation DVD. If Microsoft C++ Redistributable, VISA Shared Components and IVI Shared Components are not present, the InstallShield comes up and will list the application as requirement. Press Install to start the installation of the Microsoft C++ Redistributable, VISA Shared Components and IVI Shared Components. The IO Suite InstallWizard Welcome Screen is displayed afterwards.

4 Click Next and on the upcoming License Agreement Screen, accept the License Agreement and than click Next to continue the upgrade.

5 Select Typical for the installation type and press Next to continue.

6 On the upcoming window, verify the path statements for the installation and press Install to start the installation process. The system will start now installing the files to your disk.
1 Installing the Agilent IO Library Suite and Drivers
Installing the IO Library Suite 15.5

7 The 15.5 have been successfully installed now. Leave the screen with **Finish**.
You will see the IO Control icon \[ IO \] in the taskbar notification area of your PC screen. (The taskbar notification area is where the clock is usually displayed).

![Finish Device Driver Installation in Windows XP](image)

**Figure 1** Finish Device Driver Installation in Windows XP

8 Reboot your PC.
Install the GPIB Cards / USB-GPIB Interfaces Drivers

This section outlines the initialization and installation of the various drivers in use with Agilent ChemStation.

- 82350 A/B GPIB cards (only driver installation necessary): see Figure 2 on page 11.

![Figure 2](image2.png)  
**Figure 2**  
Connection of 82350 A/B GPIB card

- 82357 A/B USB-GPIB Interfaces (initialization and installation necessary):  
The USB Interface device needs to be plugged into the GPIB connector (see Figure 3 on page 11)

![Figure 3](image3.png)  
**Figure 3**  
Single Instrument Connection of 82357A/B
1 Connecting the Agilent IO Library Suite and Drivers

Install the GPIB Cards / USB-GPIB Interfaces Drivers

**Figure 4** Multi Instrument Connection of 82357A/B

![Multi Instrument Connection of 82357A/B](image)

**NOTE**

Depending on your PC and previously installed software/hardware, the driver initialization and installation procedure may slightly differ compared to the outline in this document. Please compare the screens carefully.

1. Connect your 82357A/B USB-GPIB Interface or built-in the 82350 A/B GPIB card into your PC. Leave your instrument switched off.

2. As the operating system starts after power cycling, a tool tip will notify about new hardware (GPIB card or USB-GPIB Interface) (see **Figure 5** on page 12).

Now running the installation, the system will

1. Find the new hardware

![Found New Hardware](image)

**Figure 5** Found New Hardware
2 Recognize the 82350A/B or 82357A/B

![Recognize New Hardware](image1.png)

**Figure 6** Recognize New Hardware

3 Initialize the new hardware

![Initialize New Hardware](image2.png)

**Figure 7** Initialize New Hardware

The hardware wizard can detect the following hardware:
- Agilent Technologies 82350 PCI GPIB
- Agilent Technologies 82357 USB- GPIB Interface

Please wait till the initialization went through. The tool tip will inform you that the hardware is ready to use.
Configure the 82350 A/B GPIB Card or the 82357 A/B USB-GPIB Interface

The Agilent Connection Expert is a software utility that helps you to quickly get your instruments connected to your PC and troubleshoot connectivity problems. You can use Connection Expert to:

- Configure instrument I/O interfaces
- Automatically discover instruments that are connected to your PC or to your local area network (not recommended for ChemStation Instruments)
- Browse the structure and connections of your test system (including your PC, instruments, and interfaces)
- Detect and troubleshoot connectivity problems in your system

**NOTE**

Starting the Agilent Connection Expert the system autodetects all available devices. This can lead to connection issues using the Electrophoresis System. Please follow the outline steps in this document and do not use the available **Refresh all** function.

1. Start the Connection Expert by clicking the IO Control (IO icon in the Windows notification area), and click **Agilent Connection Expert** (see Figure 8 on page 14).

![Figure 8 Run Connection Expert](image)

2. Close the Welcome Screen of the Connection Expert.
The Connection Expert automatically detects most interfaces and instruments, and will assign names and other default configuration settings. You can click on them to see their properties (displayed in the right-hand pane). In order to use it with ChemStation controlled instruments, the interfaces and devices need to be configured manually for proper communication.

If your GPIB Instrument is switched on, the Connection Wizard automatically detects the online instrument and assigns the default configuration.

Note
In case of the Capillary Electrophoresis, this assignment is not correct. The connection needs to be established manually. Leave this instrument turned off! This prevents the assignment of incorrect default configuration.

3 In the section Instrument I/O of this PC all currently available communication ports are listed. Select the first port, e.g. COM 1 and press delete (using the Task Guide, Menu Bar or the right mouse-click function). Please remove ALL available ports one after the other.
1 Installing the Agilent IO Library Suite and Drivers
Configure the 82350 A/B GPIB Card or the 82357 A/B USB-GPIB Interface

4 In the section System Task select add an Interface.

![Connection expert: Manually Add an Interface](image)

5 Select your interface type from the list of available interface types and press Add. Using ChemStation Instruments the following interface types are supported:
- Agilent 82357A USB/GPIB Converter
- Agilent 82357B USB/GPIB Converter
- Agilent 82350A GPIB Card
- Agilent 82350B GPIB Card

**NOTE** If you are not sure, if your instrument supports the mentioned interfaces, please consult Chapter 1.

The next window allows to modify the configuration of the chosen interface.

6 Continue with option a) below for the 82350A/B GPIB cards, and with option b) for the 82357A/B USB-GPIB Interface.
   a For the 82350A/B GPIB cards, see Figure 11 on page 17.
      - Set the **GPIB address** to 30
Configure the 82350 A/B GPIB Card or the 82357 A/B USB-GPIB Interface

- set the **SICL Interface ID** to **hp82341**
- check the **System controller** box
- deselect the **Auto-discover instruments connected to this interface** option
- press **OK** to finish the configuration.

![Configuration Parameter 82350A/B GPIB Card](image)

For the 82357A/B USB-GPIB Interface, see **Figure 12** on page 18.

- Set the **GPIOB address** to **30**
- set the **SICL Interface ID** to **hp82341**
- deselect the **Auto-discover instruments connected to this interface** option
- press **OK** to finish the configuration.
1 Installing the Agilent IO Library Suite and Drivers

Configure the 82350 A/B GPIB Card or the 82357 A/B USB-GPIB Interface

7 Locate your interfaces and GPIB cards in the explorer pane. You can click on them to see their properties. It is possible to rename the labels of the interfaces and GPIB cards. You can observe their state, and it is also displayed in the right-hand pane if communication to the interface or instrument has been successfully established, it will be in the Verified state, denoted by a green check mark.

8 The configuration of your interfaces or GPIB card is now finished. Exit or close Agilent Connection Expert and reboot your PC.

9 Switch your instrument on, and configure your Instrument using the ChemStation Configuration editor, as described in the manual Installing your ChemStation, before starting the Agilent ChemStation Program.
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Upgrading Existing IO Libraries

Upgrading IO Libraries to the IO Library Suite  20

This chapter explains how to upgrade from existing IO Libraries to IO Libraries Suite
Upgrading IO Libraries to the IO Library Suite

You can check the existence of an previous version of IO Libraries either by the IO icon in the left-hand site in the task bar, or click Start > Programs and look for the Agilent IO Libraries or Agilent IO Libraries Suite program group. If this group is displayed, click Agilent IO Libraries > IO Control to display the IO icon. Click the icon and click About Agilent IO Libraries Control to display the installed version. Before you are upgrading to IO Libraries Suite from a previous version of IO Libraries, you must remove the instruments and interfaces listed below. This step is necessary in order for these devices to obtain the correct drivers to work with Agilent IO Libraries Suite.

- Disconnect any Agilent 82357 USB/GPIB interfaces from your PC
- GPIB cards can remain installed on your PC

After disconnecting your devices, please follow the outlined steps like listed below.

**NOTE**
The IO Library Suite requires Microsoft Visual C++ Redistributable, VISA Shared Components and IVI Shared Components to be installed prior the installation of the application. If these components are not present, they will be installed automatically, before starting the IO Library Suite installation.

**NOTE**
The IO Library Suite requires Microsoft Framework to be installed prior the installation of the application. If the needed Microsoft Framework is not present, it will be installed automatically, during the IO Library Suite installation.

1. Close all other applications on your PC.
2. Using the Windows Explorer, locate and start IOLibSuite_15_5_MR_EXE.exe in the IO_Libs directory of your ChemStation DVD. If Microsoft C++ Redistributable, VISA Shared Components and IVI Shared Components are not present, the InstallShield comes up and will list the application as requirement. Press Install to start the installation of the Microsoft C++ Redistributable, VISA Shared Components and IVI Shared Components.

The IO Suite InstallWizard Welcome Screen is displayed afterwards.
3 Click **Next** and on the upcoming License Agreement Screen, accept the License Agreement and then click **Next** to continue the upgrade.

4 Select **Typical** for the installation type and press **Next** to continue.

5 On the upcoming window, verify the path statements for the installation and press **Install** to start the installation process.

6 During the installation process the InstallWizard will check for older versions of the IO Library or IO Library Suite. If older versions are present, the older version will be de-installed automatically. The user will be notified on the screen and the installation of the IO Library Suite will proceed immediately.

7 When the installation is complete, leave the screen with **Finish**.

![Figure 13](image)

**Figure 13** Finish Device Driver Installation in Windows XP

8 Reboot your PC to initialize the IO Libraries Suite 15.0 with the GPIB card, or USB/GPIB Interface. Please follow the initialization steps and configuration steps listed in “Upgrading Existing IO Libraries” on page 19.
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This chapter outlines the changes made by the installation, and lists IO Services and Processes.
What has been changed by the Installation?

ChemStation requires a full installation of the IO Libraries Suite, therefore the whole library packages including SICL and VISA were installed and several program icons were created. In addition, an Agilent IO Control was created.

During installation, the Agilent IO Libraries Suite program group was created (see Figure 14 on page 24).

Figure 14  Agilent IO Libraries Suite program group
### Table 3  
Agilent IO Libraries Suite Program Items

<table>
<thead>
<tr>
<th>Program item</th>
<th>Contains / opens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation</td>
<td>PDF User Guides etc. for SICL, VISA, etc.</td>
</tr>
<tr>
<td>Help</td>
<td>Help Files for all Program items</td>
</tr>
<tr>
<td>Programming Samples</td>
<td>Programming examples for Excel, Visual Basic 6, Visual Basic .NET, etc.</td>
</tr>
<tr>
<td>Agilent Connection Expert</td>
<td>Opens the Agilent Connection Expert. Use to configure your connection interface</td>
</tr>
<tr>
<td>IO Libraries Suite Readme</td>
<td>Opens IO Libraries Suite Readme</td>
</tr>
<tr>
<td>Utilities</td>
<td>Lists the available IO Libraries Suite Utilities</td>
</tr>
</tbody>
</table>
IO Control Services and Processes

The services and processes listed below are present for plain ChemStation configuration. Additional services and processes (Agilent.TMFramework) are present depending on your configuration (e.g. remote Services).

The following table lists the IO Control related services and processes,

- present after the installing the IO Control
- present during online connection to a GPIB Interface
- present during online connection to a USB/GPIB Interface

Table 4  IO Control Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Present after/during</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agilent IO Libraries Service</td>
<td>after installation</td>
</tr>
</tbody>
</table>

Table 5  IO Control Processes

<table>
<thead>
<tr>
<th>Process</th>
<th>Present after/during</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agilent.TMFramework.Connectivity.</td>
<td>after installation</td>
</tr>
<tr>
<td>AgilentIOLibrariesService.exe</td>
<td></td>
</tr>
<tr>
<td>Agilent.TMFramework.Connectivity.</td>
<td>after installation</td>
</tr>
<tr>
<td>AgilentNkoServer.exe</td>
<td></td>
</tr>
<tr>
<td>Agilent.TMFramework.Connectivity.</td>
<td>after installation</td>
</tr>
<tr>
<td>AgilentIOServer.exe</td>
<td></td>
</tr>
<tr>
<td>hsicltsk.exe</td>
<td>Online Session of ChemStation for GPIB and USB/GPIB</td>
</tr>
</tbody>
</table>
4
Installation troubleshooting

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Changing Your Installation or Removing IO Libraries Suite 32

This chapter gives support in case of installation problems. In addition it gives instructions how to change or remove your installation.
Installation Troubleshooting

If you encounter problems while installing the IO Libraries Suite, the following steps may help.

1. Close or cancel all **InstallShield Wizard** and other *Agilent IO Libraries Suite* windows. Exit any other applications on your system.

2. Browse to the IO_Libs folder of your ChemStation DVD and double-click to run IOLibSuite_15_5_MR_EXE.exe.
   This restarts the installation process.

3. If you see the standard **InstallShield Wizard**, step through the installation process as described in this chapter.

4. If you see **Modify**, **Repair**, and **Remove** options, select **Repair**.
   This will reinstall all installed features of IO Libraries Suite.

5. If this does not solve the problem, restart the installation again, select **Remove**, and then reinstall the product.
Problems with Plug and Play option GPIB cards

Operation systems using Plug and Play may show problems during the installation of the appropriate drivers for the GPIB (PCI) cards.

In order to overcome plug and play related problems please follow the steps below to install the card successfully.

1. If already installed, uninstall the Agilent IO Libraries Suite 15.5 from Control Panel > Add/Remove Programs.

2. Remove the GPIB Interfaces (if installed) listed under the Device Manager and shut down the computer. For Windows XP: in the Control Panel, double-click System > Hardware Tab > Device Manager > GPIB Interfaces.

3. Physically remove the GPIB card from the computers PCI interface.

4. Restart the computer and log on to the system. Install the Agilent IO Libraries Suite 15.5. Do not configure the card this time and shut down your computer.

5. Re-insert the GPIB card and boot the computer.

   The New Hardware Found wizard will indicate that a PCI card is found.

6. In the New Hardware Found window, select the second choice to search from a list of known devices. In this list, select the option for Agilent Technologies, since the IO Libraries Suite 15.5 is already installed.

7. To configure the GPIB card please follow the instructions stated in “Configure the 82350 A/B GPIB Card or the 82357 A/B USB-GPIB Interface” on page 14 of this booklet.

8. Click the icon [ICON] to start the Agilent IO Control and choose Agilent Connection Expert.
4 Installation troubleshooting
Problems with Plug and Play option GPIB cards

Problems with Plug and Play option using 82357A/B USB-GPIB Interface

Operating systems using Plug and Play may show problems during the installation of the appropriate drivers for the USB-GPIB Interface.

In order to overcome problems related to Plug and Play, please follow the steps to install the card successfully.

1 Verify the status of the USB-GPIB Interface in the Device Manager: Start > Settings > Control Panel, double-click System > Hardware Tab > Device Manager > GPIB Interfaces.

![Device Manager Windows XP USB-GPIB Interface, correctly installed](image)

Figure 15 Device Manager Windows XP USB-GPIB Interface, correctly installed
2 If a yellow exclamation mark is attached to the USB-GPIB Interface (see Figure 16 on page 31) the driver needs to be installed a second time as in “Install the GPIB Cards / USB-GPIB Interfaces Drivers” on page 11.

![Figure 16](image)

**Figure 16** Device Manager Windows XP after first installation of USB-GPIB Interface

3 After the second installation, the system detects the USB device automatically and allows you to configure the device properly. Start the Agilent Connection Expert to configure your GPIB connection.

4 Start the IO Config Utility by clicking on the Icon , and choose Agilent Connection Expert to configure your GPIB Interface (see “Configure the 82350 A/B GPIB Card or the 82357 A/B USB-GPIB Interface” on page 14).

5 From the list of available interface types, choose the 82357 USB to GPIB.
Changing Your Installation or Removing IO Libraries Suite

1. Click **Start** > **[Settings]** > **Control Panel** > **Add or Remove Programs**
2. Select **Agilent IO Libraries Suite**
3. Click **Change/Remove**
4. Select the action you want to take:
   - **Modify**: Adds, replaces, or removes selected features. You can change your installation from primary to side-by-side or from side-by-side to primary by using this option. You can also use this to install manuals or sample code if you did not initially install them.
   - **Repair**: Reinstalls all features.
   - **Remove**: Removes the product from your PC.
5
Agilent IO Libraries Suite 15.5 Documentation

Instructions on how to access additional documentation
Online Help is easily available whenever you use the Connection Expert software. Just click Help > Help Topics or press the F1 key. To access the online help without running Connection Expert, click the IO Control icon, click Documentation and then IO Libraries Suite Help. The online help will appear on your screen in a new window.
The Task Guide

The *Connection Expert task guide* appears in the left-most pane of the Connection Expert window. The choices listed in the task guide are based on what you have selected in the explorer pane (the middle pane of the Connection Expert window). The purpose of the task guide is to point you to common tasks and useful information.

Other Documentation

The table below lists documentation that may be helpful to you as you connect and control your instruments.
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In This Book

This manual describes how to install and use the IO Libraries Suite 15.5.