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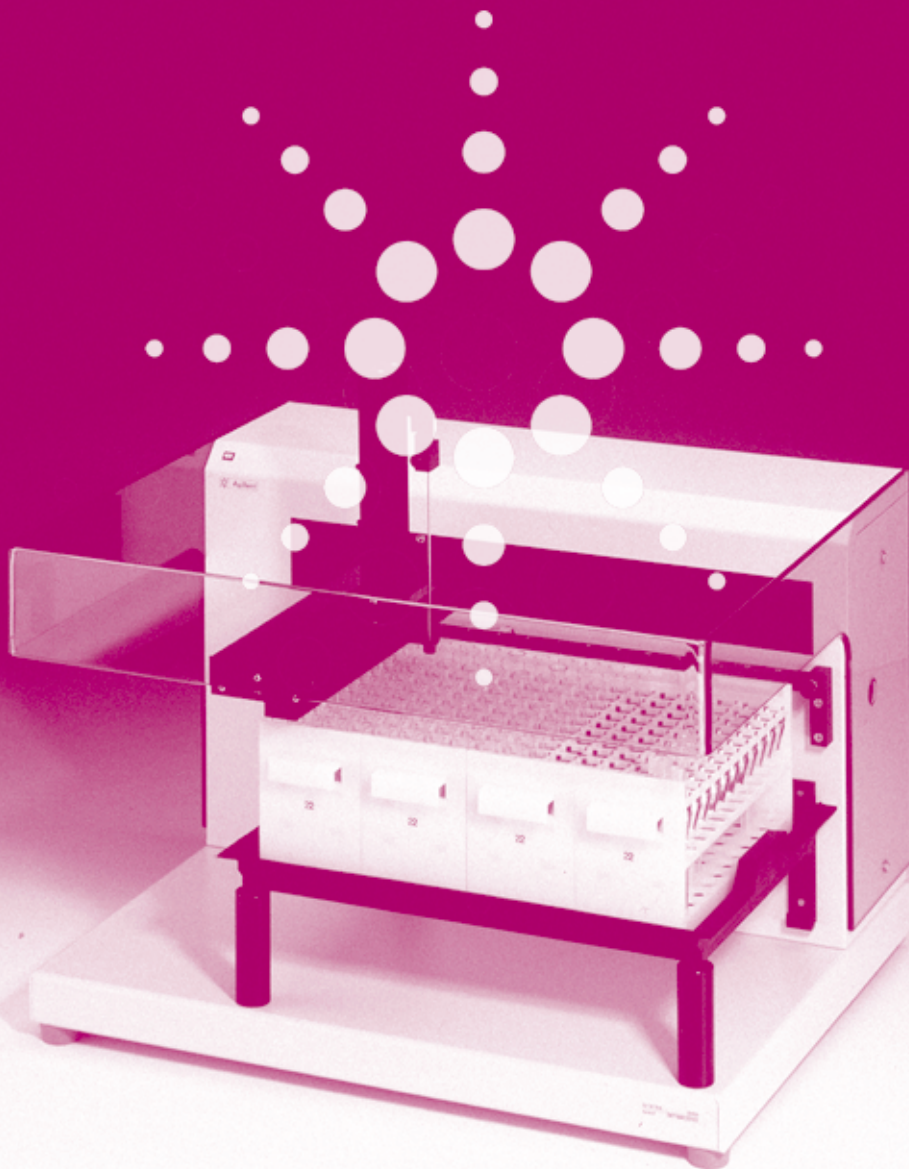
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Agilent XY Autosampler

Operator's Manual



Agilent Technologies

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For details of safety,
see Safety Information
on page 60.

Warning Symbols Used In This Book



The apparatus is marked
with this symbol when
the user should refer to
the instruction manual
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apparatus against
damage.

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Germany

Agilent XY Autosampler

Operator's Manual

In This Book

This book contains the following chapters:

- Chapter 1 “Description and Specifications” — The XY autosampler’s accessories described, and its specifications.
- Chapter 2 “Installation” — How to set up the XY autosampler.
- Chapter 3 “Operation” — How to operate the XY autosampler through the Agilent ChemStation.
- Chapter 4 “Maintenance and Repair” — Guidelines for maintaining your XY autosampler.
- Chapter 5 “Parts and Supplies” — Replacement parts for the XY autosampler.
- Chapter 6 “The Rear Panel” — Interface connectors at the rear panel of the XY autosampler.

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Description and Specifications

The XY autosampler's accessories described, and its specifications

Description and Specifications

This chapter contains:

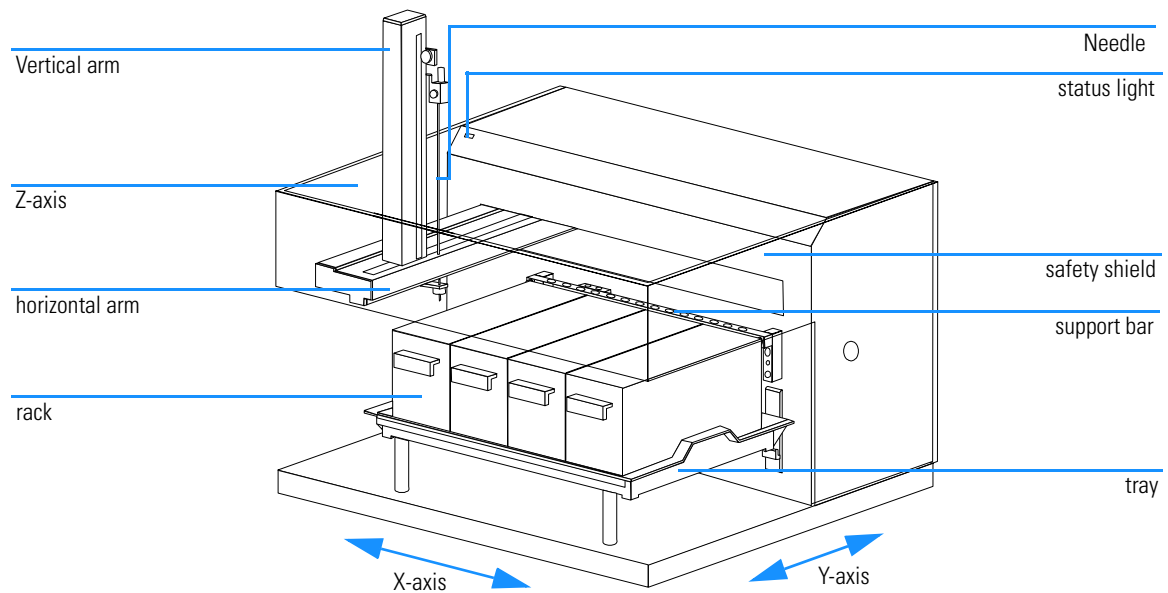
- a brief description of the accessories for the XY autosampler, and
- technical specifications of the XY autosampler.

Description

Description

The Agilent Technologies XY autosampler (G1811A) is an XYZ robot which can automate sample handling procedures. It is controlled by Agilent ChemStation for UV-visible spectroscopy software of revision A.06.0x or higher. Figure 1 shows the standard configuration of the XY autosampler.

Figure 1 **Assembled XY Autosampler**



To transfer analyte from the XY autosampler to the spectrophotometer, tubings, a flow cell and a peristaltic pump are needed. For more details of how to connect tubings to the XY autosampler needle, see “Connecting the Sipper Tubing to the XY Autosampler” on page 28.

Systems including an XY autosampler controlled by a local user interface from Gilson, Inc. are not supported by Agilent.

Specifications

Manufacturing Standards

Safety certification:

- UL 3101
- CSA 1010
- EN 61010

EMC certification:

- EN 50082-1
- FCC part 15

EMI certification:

- EN 50081-1

| | |
|---------------------------------------|---|
| Autosampler type | XYZ robot with stationary rack design. |
| Front panel | One yellow LED. |
| Needle rinse | Dedicated rinse station for cleaning the inside and outside of the needle. Selectable rinse volume and flow rate |
| Needle positioning performance | Resolution in X, Y and Z: ± 1 mm. Repeatability in X, Y and Z: ± 0.25 mm. |
| Arm speed | X- and Y-axes: 250 mm/s. Z-axis: 126.9 mm/s. |
| Rack capacity | Up to four 21 series racks. |
| Control | Computer control via RS-232 port. |

Site Requirements

Table 1

Physical Specifications

| Type | Specification |
|---|--|
| Dimensions (width × depth × height*) | 53.5 × 43.7 × 37.1 cm (21 3/32 × 17 3/16 × 14 5/8 inches) |
| Line voltage | 100/120 or 220/240 VAC |
| Line frequency | 50/60 Hz |
| Current rating | 2.0 A for 100/200 V or 1.0 A for 220/240 V |
| Temperature range | 5 – 40 °C |
| Humidity | not more than 75% |
| Air pressure range | 75 – 105 kPa |

* Height without vertical arm installed

Description and Specifications
Site Requirements

Installation

How to set up the XY autosampler

Installation

What you will find in this chapter:

- “Unpacking the XY Autosampler” on page 15
- “Power Connection and Fuses” on page 17
- “Assembling the XY Autosampler” on page 19
- “Setting up the Communication Interface” on page 30

Unpacking the XY Autosampler

The XY autosampler is shipped with all major components already assembled except for auxiliary parts such as the vertical arm, needle, tray, racks, etc. Keep the original container and packing assembly in case the XY autosampler must be returned.

Standard Equipment

Once the XY autosampler and accessories are unpacked, you should have the following:

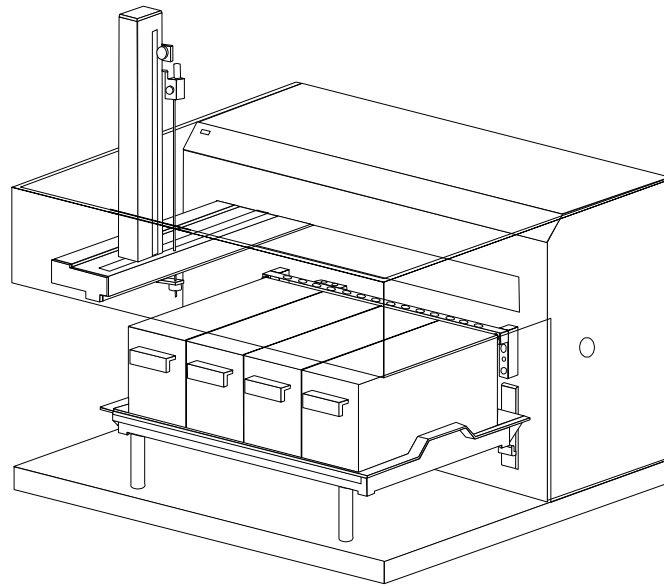
- XY autosampler with certificate
- *User Manual*
- Fuse drawers 220V/240 V and 110V/120 V
- Fuses (2 A)
- Power cords
- Terminal block connectors
- Vertical arm (Z-drive 123 mm) and screws for vertical arm (Z-drive)
- Needle (123 mm)
- 3 feet of 7 mm id Tygon tubing.
- Support bar assembly
- RS232 cable
- XL wash station
- Open wash cylinder
- Holder guide kit (1.5 mm probe)
- 223 generic black pan with drain assembly
- 223 tray spacer
- Four code 21 racks
- Safety shield with screws

Installation

Unpacking the XY Autosampler

Figure 2

Unpacked and Assembled XY Autosampler



Power Connection and Fuses

Fuses

Your XY autosampler operates at a line voltage of 110–120 V or 220–240 V with a line frequency of 60 Hz or 50 Hz respectively.

NOTE

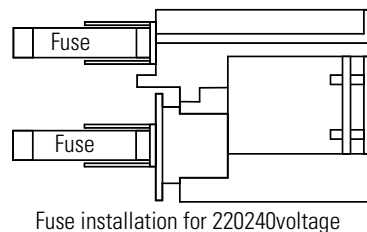
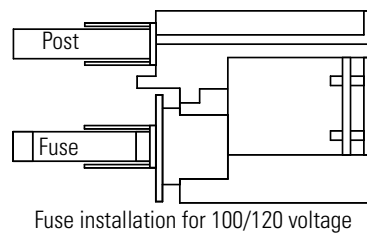
You receive the XY autosampler without any fuses installed.

To install the fuses:

- 1 Locate the accessory package containing the fuse drawer appropriate for your line voltage. Discard the other fuse drawer.
- 2 Locate the accessory package containing the 2.0 A fuses.
- 3 Install the fuse(s) into the fuse drawer. The fuse drawer for 100/120 V accepts one fuse. The fuse drawer for 220/240 V accepts two fuses.
- 4 Insert the fuse drawer into its receptacle in the XY autosampler. See Figure 21 on page 54.

Figure 3

Fuse Drawers



Installation

Power Connection and Fuses

Power Connection and Power Cords

The appropriate power cord is supplied with the system. It plugs into the power-input socket at the rear of the XY autosampler. The male end of each of the power cords is different and designed to match the wall socket of a particular country or region.

NOTE

Do not connect the instrument to the power until you completely finalized the setup of the XY autosampler, which will be at the end of this chapter.

Assembling the XY Autosampler

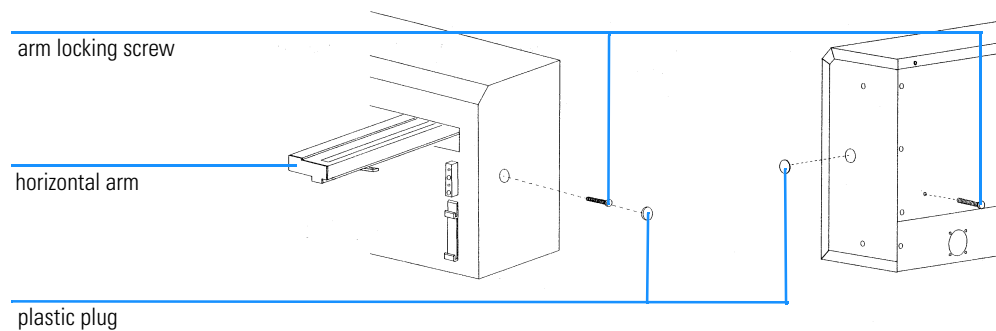
Arm Locking Screw Removal

During shipment, a screw locks the horizontal arm into place.

- 1** Locate and remove the black plastic plug located on the right side panel of the XY autosampler.
- 2** With your left hand, hold the horizontal arm into place.
- 3** Using a Phillips screwdriver, remove the arm locking screw, located inside the XY autosampler.
- 4** Insert the arm locking screw into its storage location on the rear panel.
- 5** Replace the plastic plug on the side panel.
- 6** Ensure that the horizontal arm can move by pushing it to the left as far as it will go.

Before packing the XY autosampler for shipment, always secure the horizontal arm using the arm locking screw.

Figure 4 **Removing the Arm-Locking Screw**



Vertical Arm Installation

Before installing or changing the vertical arm, check that the power is turned off and the power cord is disconnected from the power socket. Also ensure

Installation

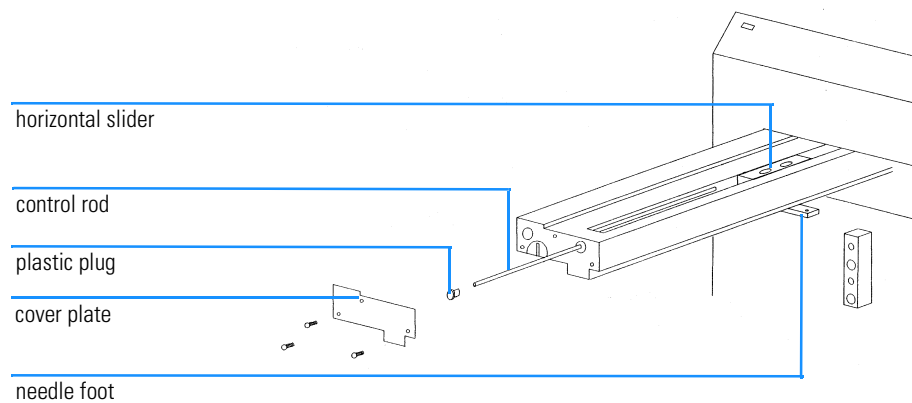
Assembling the XY Autosampler

that the arm locking screw and safety shield have been removed and the horizontal arm can move.

To install the vertical arm:

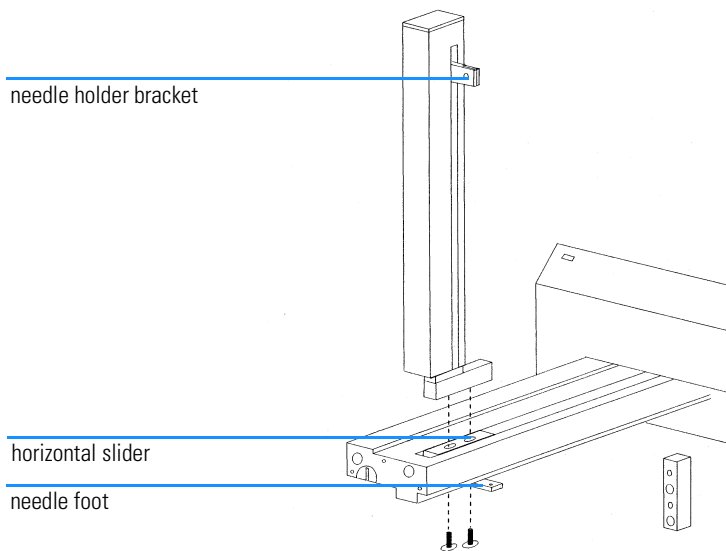
- 1** Remove the cover plate from the front of the horizontal arm by removing its three screws.
- 2** Locate the hexagonal-shaped control rod and horizontal slider by looking down into the horizontal arm. See Figure 5.
- 3** Using your finger, press on the control rod where it passes through the horizontal slider. At the same time, pull the needle foot towards the front of the horizontal arm. This causes the white plastic plug and control rod to move forward slightly. When the white plastic plug is no longer flush with the front of the horizontal arm, remove it and the control rod from the horizontal arm.
- 4** Pull the needle foot, towards the front of the horizontal arm, as far as it will go.

Figure 5 Installing the Vertical Arm—Part 1



- 5** Position the vertical arm onto the horizontal slider. When viewed from the front of the XY autosampler, the vertical arm's needle holder bracket is on the right.

Figure 6 Installing the Vertical Arm—Part 2



- 6** Use the supplied screws to secure the vertical arm to the horizontal slider. The screws insert into the bottom of the mounting holes in the horizontal slider. You may need to move the vertical arm back and forth slightly to align its mounting holes with those in the horizontal slider.
- 7** Reinsert the control rod as far as it will go. While inserting the control rod, you may need to rotate it back and forth slightly to get it to pass through the gearing and motor drive socket in the horizontal slider.
- 8** Applying pressure at the vertical arm's base, push the vertical arm to the back of the horizontal arm.
- 9** While slightly moving the needle holder bracket up and down, push the control rod until it clicks into position.
- 10** Reinsert the white plastic plug.
- 11** Reattach the cover plate to the front of the horizontal arm.

Installation

Assembling the XY Autosampler

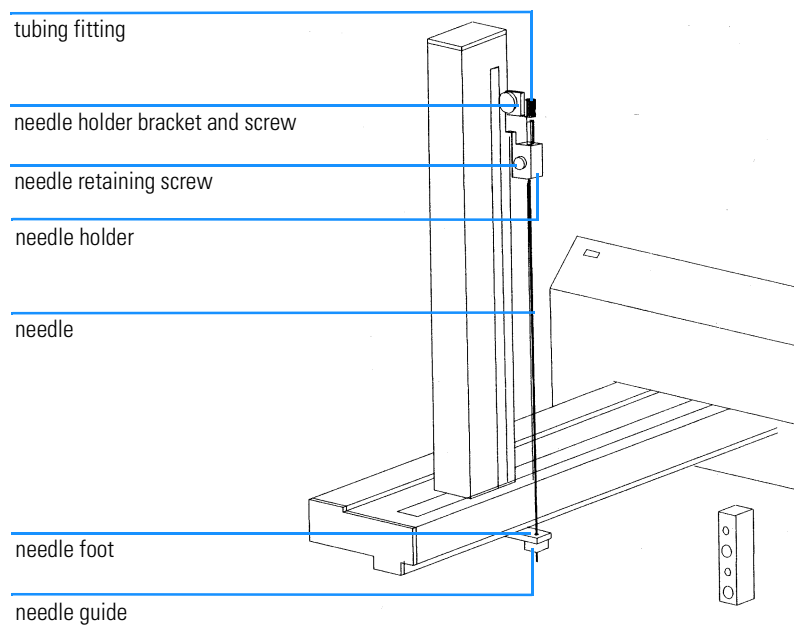
Needle Installation

Locate the accessory packages containing the needle (part number G1811-23200) and the needle holder/guidekit.

When installing the needle, refer to Figure 7 that shows where the needle, needle holder, and needle guide are installed on the XY autosampler.

Figure 7

Installing the Needle

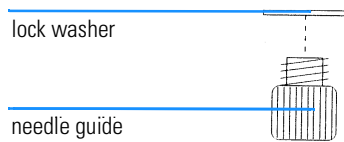


Installing Needle Guide

To install the needle guide:

- 1 Place the metal lock washer onto the needle guide.
- 2 Screw the needle guide with lock washer into place on the bottom side of the needle foot.

Figure 8 Needle Guide of Sampler Needle



Installing Needle Holder

To install the needle holder, slide it into place on the needle holder bracket and secure with the supplied screw.

Installing Needle

To install the needle:

- 1 Slide the needle into the tubing fitting.
- 2 Connect the transfer tubing from the dilutor, if installed, to the tubing fitting.
- 3 Slide the needle assembly into the needle holder on the vertical arm making sure that the needle is centered over the needle guide.
- 4 Secure the needle by tightening the needle retaining screw.

Rinse Station and Support Bar Installation

NOTE

The terms **rinse station** and **wash station** are used synonymously throughout this manual.

The support bar attaches to the front face of the XY autosampler. Its rear contains mounting holes for rinse stations and its top contains mounting holes for transfer ports and filler ports.

Rinsing Well

From left to right, the ports in a rinse station are the rinsing well, level-sensing rinsing well, and drain. See Figure 9 for more details.

Before mounting the rinse station, you should make a decision as to whether you want to use a

- *non-flow-through* rinse station — rinsing well,

or a

Installation

Assembling the XY Autosampler

- flow-through rinse station — flow-through rinsing well.

Installing Rinse Station and Support Bar

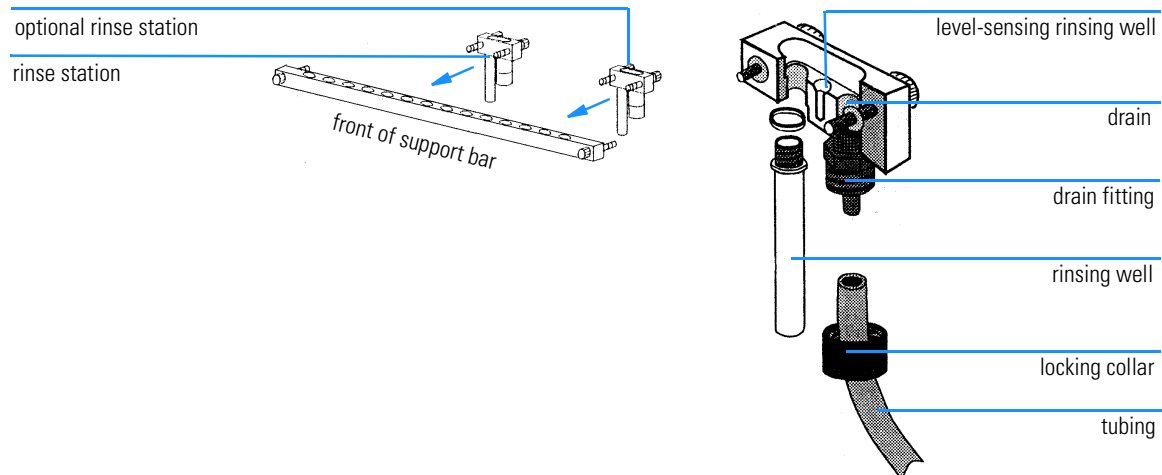
- 1 Screw the **rinsing well** (non flow-through rinse station) or **flow-through rinsing well** (flow-through rinse station) to the holder of the rinse station as shown in Figure 9.
- 2 Attach the rinse station(s) to the support bar. If using only one rinse station, the default position for the rinse station is the left side of the support bar when the bar is attached to the XY autosampler.

To attach tubing to the drain, locate the Tygon drain tubing. Remove the locking collar from the drain fitting. Slide the tubing through the locking collar. Attach the tubing to the drain fitting. Then screw the collar onto the drain fitting. Place the other end of the tubing in a drain receptacle, located lower than the tray.

If you ordered a flow-through rinsing well, remove the rinsing well and attach the flow-through rinsing well in its place. Then attach tubing to the flow-through rinsing well and connect the other end to a liquid source.

Figure 9

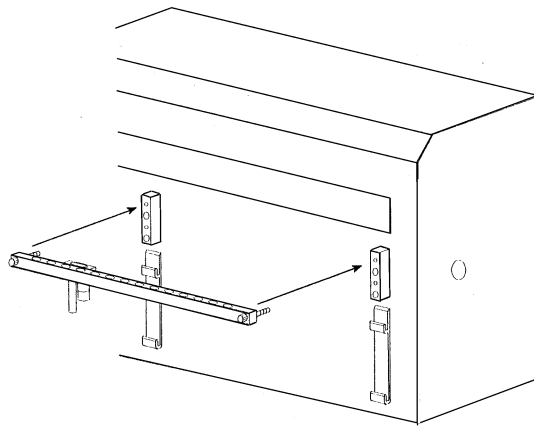
Mounting the Rinse Station



- 3 Attach the support bar to the front of the XY autosampler using the knurled screws.

Figure 10

Mounting the Support Bar



Tray Installation

The tray positions the racks and any accessories that fit onto the bed of the XY autosampler. It also contains liquid spills, such as those caused by overflowing vessels. The tray can be installed in an upper or lower position on the XY autosampler's bed depending on the size of tubes being used.

Upper Position

If using tubes that are less than 100 mm in height:

- 1 Screw the tray spacers into place. See Figure 11.

NOTE

When not being used, screw the tray spacers into the holes located in the left rear of the XY autosampler's bed.

- 2 Place the tray on top of the tray spacers making sure it fits securely in the tray mounting brackets and that the drain outlet is located at the left rear of the tray. Attach one end of the drain tubing to the drain outlet and place the other in a drain receptacle, located lower than the tray.

Lower Position (currently not used)

If you are using tubes that are more than 100 mm in height, install the tray in the lower position on the tray mounting brackets. Make sure that it fits securely and that the drain outlet is located at the left rear of the tray. Attach

Installation

Assembling the XY Autosampler

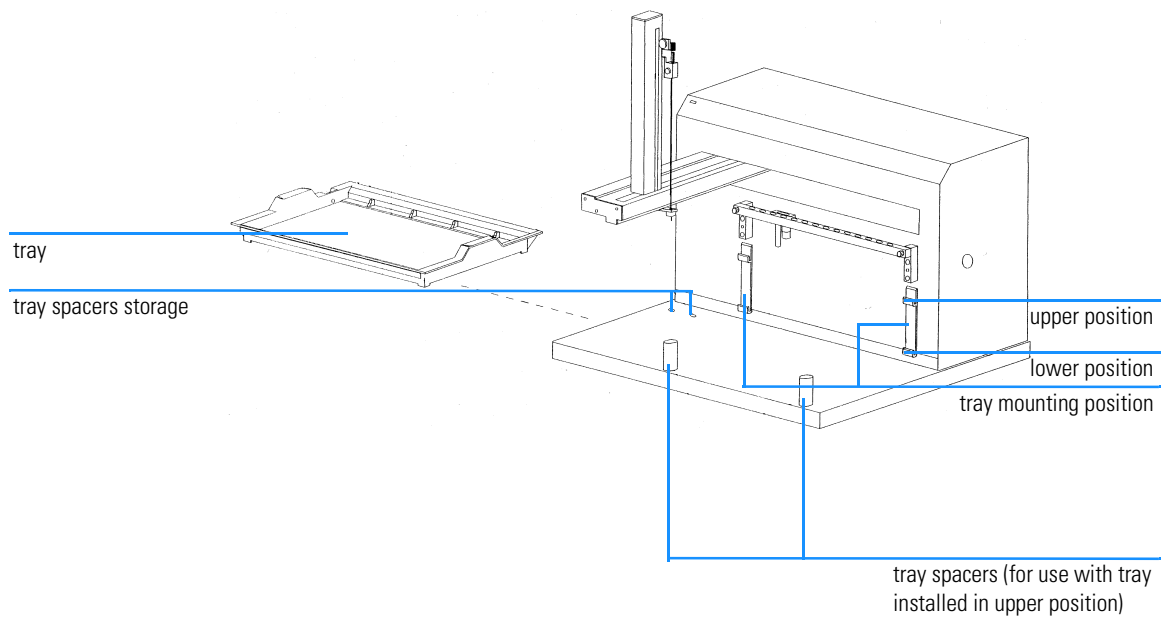
one end of the drain tubing to the drain outlet and place the other in a drain receptacle, located lower than the tray.

Tray Removal

To remove the tray, first lift it straight up and then pull it gently towards you.

Figure 11

Installing the Tray



Installation

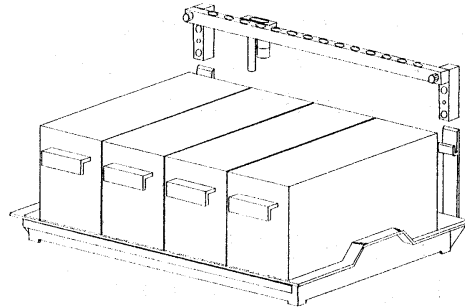
Assembling the XY Autosampler

Rack Installation

The XY autosampler is equipped to hold up to four code 21 racks (part number for one rack G1811-04500). Place each rack into the tray so the rack is perpendicular to the front panel of the XY autosampler. The rack code assigned to the rack should face you. (See Chapter 5 “Parts and Supplies” for a list of racks available for the XY autosampler.)

Figure 12

Installing the Racks



Connecting the Sipper Tubing to the XY Autosampler

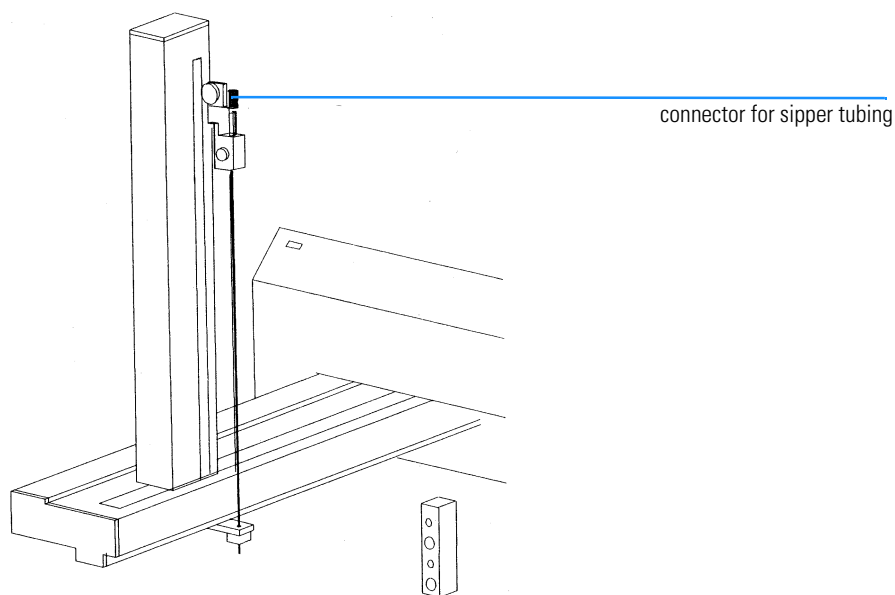
For a fully automated sample handling, you have to connect a flow cell with sipper pump (part number 89052B) and tubing (part number 5042-1334) to the XY autosampler.

Only a brief description on how to connect the inlet tubing of the flow cell to the needle of the XY autosampler is given here. For more detailed instructions on how to setup the sipper system, refer to the *Installing and Operating Your Sipper System* manual, part number 89068-90005.

- 1 Setup your sipper system as described in the *Installing and Operating Your Sipper System* manual.
- 2 Connect the end of the sipper inlet tubing having the transparent fitting, to the threaded connector of the XY autosampler needle. See Figure 13.

Figure 13

Connecting the Sipper Tubing to the XY Autosampler



Safety Shield

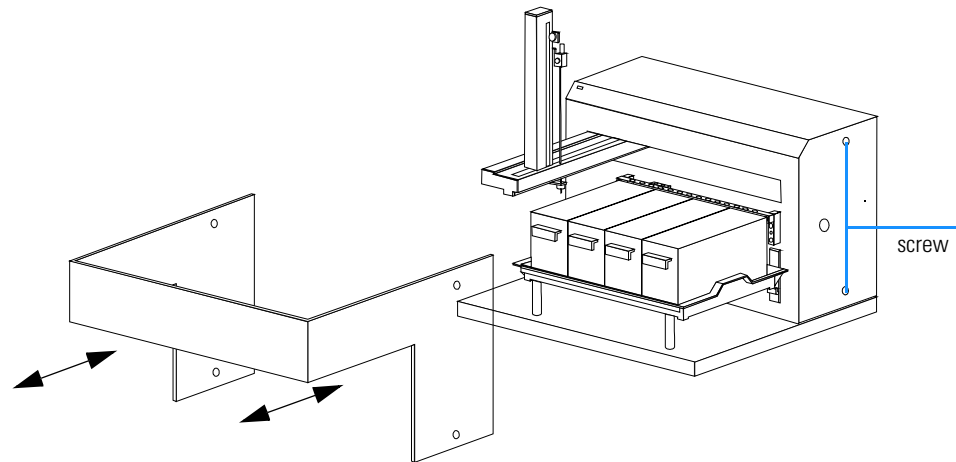
To prevent users from accessing the sample area while the needle moves up and down, a transparent plastic safety shield is mounted on the XY autosampler.

Mounting the Safety Shield

- 1 Remove both side covers by unscrewing the two screws as indicated in Figure 14.
- 2 Position the safety shield and side covers such that the drillings of the safety shield match with the drillings of the side covers and XY autosampler housing. See Figure 14.
- 3 Use the supplied screws that come with the cover, to secure the safety shield to the sampler housing.

Figure 14

Mounting and Removing the Safety Shield.



Removing the Safety Shield

- 1 Remove the two screws on each side of the XY autosampler. See Figure 14.
- 2 Gently pull the safety shield as indicated by the arrows in Figure 14 and lift it.

Setting up the Communication Interface

Setting up the RS-232 Interface

The RS-232 port is used to transfer information between the XY autosampler and a computer.

RS 232 Interface of your PC

Prior to controlling the XY autosampler by the UV-visible ChemStation software, you have to update the registry file of your operating system.

The following installation procedure describes how you update your registry file for a WIN NT 4.0 or WIN 95 operating system:

- 1 Start your PC, which must have either WIN NT 4.0 or WIN 95 operating system loaded.
- 2 Start *Windows Explorer* of your operating system and go to the C:\HPCHEM\UVEXE directory.
- 3 Under C:\HPCHEM\UVEXE double-click on the appropriate *.reg file to update the registry file of your operating system. How you identify the appropriate *.reg file is shown in Table 2.

Table 2

List of *.reg Files to Update the Registry File of your Operating System

| | WIN NT 4.0 | WIN 95 |
|-----------------|-------------|-------------|
| RS 232 (Port 1) | com1_nt.reg | com1_95.reg |
| RS 232 (Port 2) | com2_nt.reg | com2_95.reg |

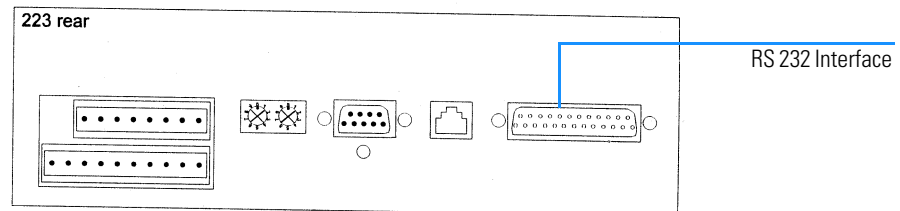
- 3 Reboot you PC.

RS 232 Interface of the XY Autosampler

For the physical location of the sampler's RS-232 port, refer to Figure 15 on page 31.

Figure 15

Rear View of XY Autosampler



Connecting RS-232 Cable

NOTE

Make sure your computer is turned off before making any connections.

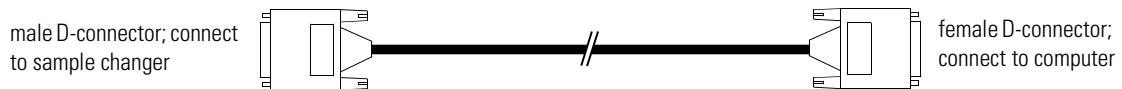
To connect your computer to the XY autosampler, you use the RS-232 cable (part number 5181-1520) that comes with the system.

Attach the male end of the RS-232 cable (25 pin end) to the RS-232 port located on the rear panel of the XY autosampler. Tighten the retaining screws.

Attach the other end of the RS-232 cable (9 pin end) to the computer's RS-232 port. (Do not mistake it for the female 25-pin parallel printer port!) Again, tighten the retaining screws.

Figure 16

RS-232 Connector Cable



Unit ID and Baud Rate Selection

Use the SW1 selector to choose a different unit ID and the SW2 to choose a different baud rate. These selectors are located on the XY autosampler's rear panel; see Figure 21 on page 54 if necessary.

Installation

Setting up the Communication Interface

Unit ID of the XY Autosampler

The unit ID identifies the XY autosampler to the UV-Vis ChemStation software.

At the factory, the unit ID is set to 10. Since you will only connect a single XY autosampler via the RS 232 interface at a time, there is no need for changing this number.

However to change the unit ID do the following:

- 1 Gently insert a small flat blade screwdriver into the SW1 selector, on the rear panel and turn it.
- 2 Align the white dot with one of the indicated numbers. The unit ID is 10 plus the selected number.

Unit ID set in the Agilent ChemStation Software

The default unit ID set in the Agilent ChemStation software is 10 and so matches the default unit ID of the X-Y sampler.

To change the unit ID in the software:

- 1 Start your Agilent ChemStation and select *Standard* in the *Mode* drop down list box.
- 2 Go to the *Sampling System* drop down list box and choose *XY autosampler* as sampling system.

NOTE

Your Agilent ChemStation software must be of revision A.06.0x or later in order to have the capability to control the XY autosampler.

- 3 At the menu bar, go to *Instrument* and select *Setup Sampling System* in the list that appears.
- 4 In the message box which pops up, change the number in the *Unit-ID* edit box to the one appropriate for your setup.

Baud Rate

As a default, the baud rate selector is set to 0, indicating that the XY autosampler is set for a baud rate of 19200.

The baud rate of the PC's RS 232 interface is set to 9600, and so you need to change the setting for the SW2 selector to 1:

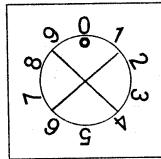
Installation

Setting up the Communication Interface

- 1 Gently insert a small flat blade screwdriver into the SW2 selector on the rear panel and turn it.
- 2 Align the white dot with 1.

Figure 17

Default Baud Rate Setting of XY Autosampler



Installation

Setting up the Communication Interface

Operation

How to operate the XY autosampler through the
Agilent ChemStation

Operation

This chapter describes:

- “Software and Firmware Requirements” on page 37
- “Controlling the XY Autosampler through Agilent ChemStation” on page 38

Software and Firmware Requirements

Software Requirements

The software prerequisite for controlling the XY autosampler is Agilent ChemStation software revision A.06.02 or later.

NOTE

Agilent ChemStation software revisions A.05.04 or lower, do not support the XY autosampler.

Agilent ChemStation software supporting the XY autosampler are:

- General purpose software for UV-visible spectroscopy
- Advanced software for UV-visible spectroscopy
- Dissolution testing software for UV-visible spectroscopy (applies to single-bath dissolution testing only)

Operating capabilities of the XY autosampler vary with software package. A fully automated and flexible control of the sampler is only available with the advanced software package.

Firmware Requirements

To control the Agilent 8453 spectrophotometer through the revision A.06.02 Agilent ChemStation software, you must have revision A.03.30 firmware loaded on the main board of the spectrophotometer.

You can check the revision of the main board firmware by selecting Verification and Diagnostics mode in the Agilent ChemStation. In Verification and Diagnostics choose Information in the Task drop down list box. Under the item Summary Information in the Instrument Information drop down list box, you will find the item Instrument General. Click on the Instrument General button and information on the Agilent 8453, including main board firmware revision, is displayed.

Controlling the XY Autosampler through Agilent ChemStation

Setting Up Agilent ChemStation

To control your XY autosampler through the Agilent ChemStation, your first have to assign it as sampling system.

- 1 Start your Agilent ChemStation.
- 2 Select a mode from the Mode drop down list box.

NOTE

The XY autosampler is supported in standard, advanced and dissolution mode.

- 3 In the Sampling drop down list box choose XY autosampler.
Before you start working with your autosampler, check all XY autosampler parameters you can set in the Agilent ChemStation software.
 - 1 Press the Setup button and in the Setup Autosampler dialog box set the:
 - Path Length of your cuvette in use. The default path length is 1 cm.
 - Unit-ID of your XY autosampler. The default Unit-ID is 10. See also “Unit ID of the XY Autosampler” on page 32.
 - Maximum Depth up to which the needle moves down into the vials. The default depth is 110 mm.
 - Rack Code of the rack holding the vials. The default rack code is 21. The rack that comes with your system has always got rack code 21.
 - First increment, which means if you first want to proceed sampling in the Y- or X-direction.
 - 2 Press the Parameter button in the Setup Autosampler dialog box and set the:
 - Pump time of your peristaltic pump by putting in the Pump edit box the number of seconds for which the pump will draw analyte in the flow cell. The default pump time is 20 s.
 - Wait Time in the Wait Time edit box. Here you define the time in seconds for which the sample is allowed to stabilize in the cell before the measurement is made. The default wait time is 3 s.

Operation

Controlling the XY Autosampler through Agilent ChemStation

- Pump Direction, either CW (clockwise) or CCW (counter-clockwise).
- Sample Return, which allows you to define the amount of analyte (in percent) transferred back into the vial. The default percentage of sample return is 0.
- Air Segment, which defines the time in seconds for which air is drawn into the system before the sample is drawn in. The default air segment is 0 s (no air segment).
- Wash Time, which sets the time in seconds the needle is dipped into the rinsing well of the rinse station. This is done between consecutive sample measurements, in order to prevent the needle from carrying over sample from different vials.

NOTE

The terms **rinse station** and **wash station** are used synonymously throughout this manual.

Manual Control of the XY Autosampler

After having set the parameters for the XY autosampler, you can advance the probe arm and needle of the sampler by clicking on the sampler icon in the graphical user interface and selecting a new sampler position or typing in a vial number and pressing the enter key.

This approach is available in all three modes supporting the XY autosampler, that is, standard, advanced and dissolution mode.

Automated Control of the XY Autosampler

General Purpose Software

The Agilent ChemStation standard mode provides you with an easy way to setup the automation table.

You can set tasks such as:

- blank measurement(s)
- control measurements (maximum is two)
- sample measurements
- standard measurements (maximum is three and only in quantification task)

Operation

Controlling the XY Autosampler through Agilent ChemStation

In the automation table of standard mode, the probe of the XY autosampler will be moved consecutively from vial 1 of rack 1 to vial 2 and so on. After having dipped in all the vials of the first rack, the software will move the probe to vial 1 of rack 2 (3 and 4) and proceed in the same way as before.

In standard mode you *can't* assign specific vial numbers to different measurements, for example, blank liquid in vial 1 and 10, control in vial 11 and 12, and samples in vials 2 through 9.

Dissolution Testing Software

The Agilent ChemStation dissolution mode provides you with the possibility to control the XY autosampler by setting up so-called dissolution run sequences.

In a dissolution run sequence several measurement actions are supported, such as:

- measure blank
- measure control
- measure standard
- measure vessels

Due to the fact that Agilent ChemStation follows the logical flow of a dissolution run, the dissolution run sequence is broken down in three different consecutive stages:

- 1 prerun sequence
- 2 dissolution run
- 3 postrun sequence

Measurement actions, as specified in the three different run stages, will be carried out such that the sampler vials and racks will be scanned consecutively.

Starting with vial 1 of rack 1, which is linked to the first measurement action defined in the prerun sequence, the sampler will proceed to vial 2 of rack 1 and so on. Depending on the overall number of measurement actions defined, the sampler will first go through all vials of rack 1, then proceed with rack two, three and four when appropriate.

Operation

Controlling the XY Autosampler through Agilent ChemStation

Advanced Software

The most versatile level for setting up an automation table for the XY autosampler sequence you have in advanced mode.

Choosing Setup Automation Table under the Automate item brings you into the automation table dialog box. You can set up an arbitrary sequence of measurements and assign the vials you want to without any restrictions, apart for the maximum number of 240 vials the XY autosampler can hold.

In column two, Source, you define the vial you want to analyze. Vials 1 through 60 belong to rack 1, 61 through 120 to rack 2, 121 through 180 to rack 3 and 181 through 240 to rack 4.

In column four, Action, you define the measurement that should be made. In case of analyzing the compounds in your vial, you have the choice to select between Measure Blank, Measure Sample, Measure Control, Measure Standard and Measure Auxiliary.

Operation

Controlling the XY Autosampler through Agilent ChemStation

Maintenance and Repair

Guidelines for maintaining your XY autosampler

Maintenance and Repair

To obtain optimum performance and maximum life from the XY autosampler, keep it well maintained.

Maintenance and Repair

Cleaning the XY Autosampler and Safety Shield

Cleaning the XY Autosampler and Safety Shield

The XY autosampler and safety shield should be cleaned occasionally using a dry, clean cloth. Or, if necessary, use a cloth dipped in soapy water. If liquid is accidentally spilled on the XY autosampler or safety shield, wipe using a dry, clean cloth.

Replacing the Needle

Refer to the appropriate instructions below depending on whether you are replacing the needle (part number G1811-23200) with one of the same type or one of a different type.

Installing the Needle

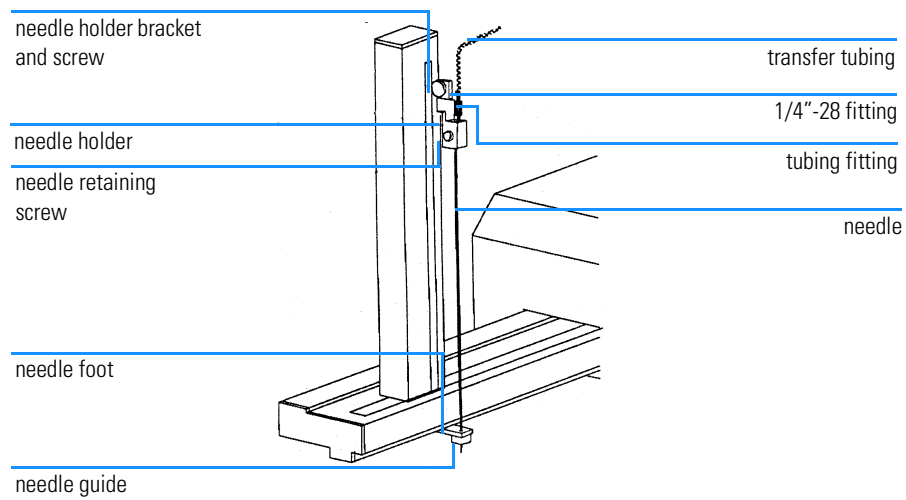
To install a replacement needle (part number G1811-23200) of the same type that is currently installed:

- 1** Remove the transfer tubing's 1/4"-28 fitting from the tubing fitting.
- 2** Loosen the needle retaining screw and remove the needle and tubing fitting from the needle holder.
- 3** Remove the old needle from the tubing fitting and insert the replacement needle.
- 4** Slide the needle assembly into the needle holder making sure that the needle is centered over the needle guide.
- 5** Secure the needle by tightening the needle retaining screw.
- 6** Attach and tighten the transfer tubing's 1/4"-28 fitting.

Maintenance and Repair
Replacing the Needle

Figure 18

Replacing the Needle



Replacing a Fuse

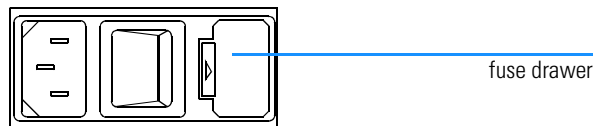
A blown fuse (part number 2110-0303) may indicate the existence of another problem in the instrument. If the replacement fuses blow, do not try others.

To change a fuse (part number 2110-0303), follow these steps.

- 1 Disconnect the power cord from the power outlet and from the rear panel receptacle.
- 2 Locate the fuse drawer on the rear panel. See Figure 21 on page 54 if necessary.

Figure 19

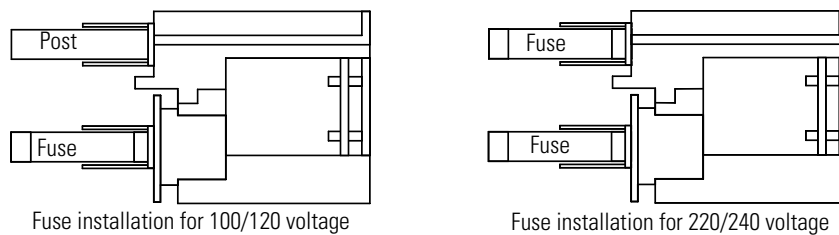
Locating the Fuse Drawer



- 3 Insert a small screwdriver into the notch located at the left of the fuse drawer.
- 4 Twist the screwdriver to open and remove the fuse drawer. The fuse drawer contains one 2.0 A “T” Slo-Blo fuse (5 × 20 mm size) for a 100/120 V selection. It contains two 2.0 A fuses for a 220/240 V selection.

Figure 20

Installing the Fuse



- 5 Remove the old fuse(s) and insert the new fuse(s).
- 6 Insert the fuse drawer into its receptacle in the XY autosampler.

Transporting the XY Autosampler

When moving the XY autosampler:

- 1 Reinstall the arm locking screw using the following procedure. Refer to Figure 4 on page 19 if necessary.
- 2 Turn off the XY autosampler.
- 3 Move the horizontal arm to the right as far as it will go.
- 4 Locate and remove the arm locking screw from its storage location at the rear panel.
- 5 Remove the plastic plug located on the right side panel.
- 6 While holding the horizontal arm in its far right position, install the arm locking screw into place inside the XY autosampler.
- 7 Replace the plastic plug.
- 8 Lift the XY autosampler by holding the base. Do not use the horizontal arm as a handle.

If packaging the XY autosampler for shipment, remove the vertical arm. To remove the vertical arm, refer to Figure 5 on page 20 and follow the instructions below.

- 1 Disconnect the transfer tubing from the needle.
- 2 Loosen the needle retaining screw and remove the needle.
- 3 Remove the plate from the front of the horizontal arm by removing its three screws.
- 4 Locate the hexagonal-shaped control rod by looking down into the horizontal arm. Lightly press on the rod with your finger and push the rod towards you. When the end of the rod is no longer flush with the end of the horizontal arm, grasp the rod and completely remove it.
- 5 While holding the vertical arm, loosen the two screws, on the underside of the horizontal arm, that secure the vertical arm. Remove the vertical arm.
- 6 Re-insert the control rod as far as it will go. While inserting the rod, you may need to rotate the rod back and forth slightly to get it to pass through the vertical arm's gearing and motor drive socket.

Maintenance and Repair

Transporting the XY Autosampler

- 7 Attach the plate to the front of the horizontal arm.

Parts and Supplies

Replacement parts for the XY autosampler

Parts and Supplies

Table 3

| XY Autosampler Parts Listing | | | |
|-------------------------------------|--------------------------------|--------------------|---------------------------|
| Item | Description | Part Number | See Figure on Page |
| 1 | Needle | G1811-23200 | Figure 7 on page 22 |
| 2 | Code 21 rack (13x100 mm, 9 ml) | G1811-04500 | Figure 12 on page 27 |
| 3 | Fuse (110 V / 220 V)* | 2110-0303 | Figure 3 on page 17 |
| 5 | RS 232 connector cable | 5181-1520 | Figure 16 on page 31 |

* You need two fuses for connecting the X-Y Autosampler to 220 V power lines.

NOTE

For a repair or exchange of your XY autosampler, call your local Agilent service representative.

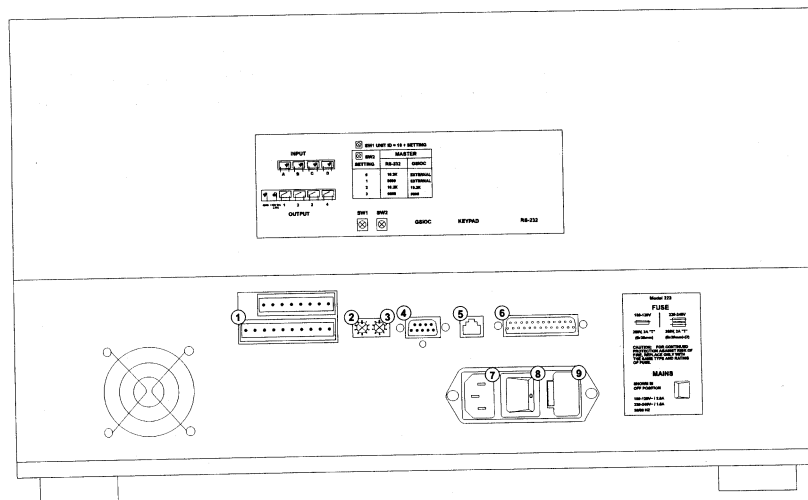
The Rear Panel

Interface connectors at the rear panel of the XY autosampler

Description of Connectors

- 1 Input/output (I/O) contact ports
- 2 Unit ID selector
- 3 Baud rate/mode selector
- 4 Gilson serial input/ output channel (GSIOC) port (currently not used)
- 5 Keypad port (currently not used)
- 6 RS-232 port (currently used)
- 7 Power receptacle
- 8 Power switch
- 9 Fuse drawer

Figure 21 Rear Panel Connectors of the XY Autosampler



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Warranty Statement

All Chemical Analysis Products

Agilent Technologies (Agilent) warrants its chemical analysis products against defects in materials and workmanship. For details of the warranty period in your country, call Agilent. During the warranty period, Agilent will, at its option, repair or replace products which prove to be defective. Products that are installed by Agilent are warranted from the installation date, all others from the ship date.

If buyer schedules or delays installation more than 30 days after delivery, then warranty period starts on 31st day from date of shipment (60 and 61 days, respectively for products shipped internationally).

Agilent warrants that its software and firmware designed by Agilent for use with a CPU will execute its programming instructions when properly installed on that CPU. Agilent does not warrant that the operation of the CPU, or software, or firmware will be uninterrupted or error-free.

Limitation of Warranty

Onsite warranty services are provided at the initial installation point. Installation and onsite warranty services are available only in Agilent service travel areas, and only in the country of initial purchase unless buyer pays Agilent international prices for the product and services. Warranties requiring return to Agilent are not limited to the country of purchase.

For installation and warranty services outside of Agilent's service travel area, Agilent will provide a quotation for the applicable additional services.

If products eligible for installation and onsite warranty services are moved from the initial installation point, the warranty will remain in effect only if the customer purchases additional inspection or installation services, at the new site.

The foregoing warranty shall not apply to defects resulting from:

- 1 improper or inadequate maintenance, adjustment, calibration, or operation by buyer,
- 2 buyer-supplied software, hardware, interfacing or consumables,
- 3 unauthorized modification or misuse,

Warranty Statement

- 4 operation outside of the environmental and electrical specifications for the product,
- 5 improper site preparation and maintenance, or
- 6 customer induced contamination or leaks.

THE WARRANTY SET FORTH IS EXCLUSIVE AND NO OTHER WARRANTY, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED. AGILENT SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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THE REMEDIES PROVIDED HEREIN ARE BUYER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL AGILENT BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFITS) WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

Responsibilities of the Customer

The customer shall provide:

- 1 access to the products during the specified periods of coverage to perform maintenance,
- 2 adequate working space around the products for servicing by Agilent personnel,
- 3 access to and use of all information and facilities determined necessary by Agilent to service and/or maintain the products (insofar as these items may contain proprietary or classified information, the customer shall assume full responsibility for safeguarding and protection from wrongful use),
- 4 routine operator maintenance and cleaning as specified in the Agilent operating and service manuals, and
- 5 consumables such as paper, disks, magnetic tapes, ribbons, inks, pens, gases, solvents, columns, syringes, lamps, septa, needles, filters, frits, fuses, seals, detector flow cell windows, and so on.

Warranty Statement

Responsibilities of Agilent Technologies

Agilent Technologies will provide warranty services as described in the following table.

Table 4

| Warranty Services | | |
|--|---------------------------|-------------------|
| Services During Warranty * | Warranty Period ** | Type |
| Agilent CE instruments, Agilent 1100 Series LC modules, Agilent 8453 UV-visible spectrophotometers | 1 Year | Onsite |
| CE, LC, UV-visible supplies and accessories | 90 Days | Onsite |
| Columns and consumables *** | 90 Days | Return to Agilent |
| Gas discharge and tungsten lamps | 30 Days | Return to Agilent |
| Repairs performed onsite by Agilent **** | 90 Days | Onsite |

* This warranty may be modified in accordance with the law of your country. Please consult your local Agilent office for the period of the warranty, for shipping instructions and for the applicable wording of the local warranty.

** Warranty services are included as specified for chemical-analysis products and options purchased concurrently provided customer is located within a Agilent-defined travel area. Agilent warranty service provides for 8 a.m. to 5 p.m. onsite coverage Monday through Friday, exclusive of Agilent holidays.

*** Columns and consumables are warranted to be free from defects for a period of 90 days after shipment and will be replaced on a return-to-Agilent basis if unused.

**** Agilent repair warranty is limited to only the item repaired or replaced.

Safety Information

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

General

This is a Safety Class I instrument (provided with terminal for protective earthing) and has been manufactured and tested according to international safety standards.

Operation

Before applying power, comply with the installation section. Additionally the following must be observed.

Do not remove instrument covers when operating. Before the instrument is switched on, all protective earth terminals, extension cords, auto-transformers, and devices connected to it must be connected to a protective earth via a ground socket. Any interruption of the protective earth grounding will cause a potential shock hazard that could result in serious personal injury. Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any intended operation.

Make sure that only fuses with the required rated current and of the specified type (normal blow, time delay, and so on) are used for replacement. The use of repaired fuses and the short-circuiting of fuseholders must be avoided.

Some adjustments described in the manual, are made with power supplied to the instrument, and protective covers removed. Energy available at many points may, if contacted, result in personal injury.

Any adjustment, maintenance, and repair of the opened instrument under voltage should be avoided as much as possible. When inevitable, this should be carried out by a skilled person who is aware of the hazard involved. Do not attempt internal service or adjustment unless another person, capable of

Safety Information

rendering first aid and resuscitation, is present. Do not replace components with power cable connected.

Do not operate the instrument in the presence of flammable gases or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.





Do not install substitute parts or make any unauthorized modification to the instrument.

Capacitors inside the instrument may still be charged, even though the instrument has been disconnected from its source of supply. Dangerous voltages, capable of causing serious personal injury, are present in this instrument. Use extreme caution when handling, testing and adjusting.

Safety Symbols

Table 5

Safety Symbols used on Instruments and in Manuals

| Symbol | Description |
|---|--|
|  | The apparatus is marked with this symbol when the user should refer to the instruction manual in order to protect the apparatus against damage. |
|  | Indicates dangerous voltages. |
|  | Indicates a protected ground terminal. |
|  | Eye damage may result from directly viewing light produced by deuterium lamps used in detectors and spectrophotometers. Always turn off the deuterium lamp before opening the lamp door on the instrument. |

WARNING

A warning alerts you to situations that could cause physical injury or damage to the equipment. Do not proceed beyond a warning until you have fully understood and met the indicated conditions.

CAUTION

A caution alerts you to situations that could cause a possible loss of data. Do not proceed beyond a caution until you have fully understood and met the indicated conditions.

Solvent Information

Observe the following recommendations on the use of solvents.

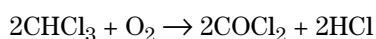
Flow Cells

Avoid the use of alkaline solutions (pH > 9.5) which can attack quartz and thus impair the optical properties of flow cells.

Solvents

Always filter solvents, small particles can permanently block capillaries. Avoid the use of the following steel-corrosive solvents:

- Solutions of alkali halides and their respective acids (for example, lithium iodide, potassium chloride, and so on).
- High concentrations of inorganic acids like nitric acid, sulfuric acid especially at higher temperatures (replace, if your analysis method allows, by phosphoric acid or phosphate buffer which are less corrosive against stainless steel).
- Halogenated solvents or mixtures which form radicals and/or acids, for example:



This reaction, in which stainless steel probably acts as a catalyst, occurs quickly with dried chloroform if the drying process removes the stabilizing alcohol.

- Analysis-grade ethers, which can contain peroxides (for example, THF, dioxane, di-isopropylether) such ethers should be filtered through dry aluminium oxide which adsorbs the peroxides.
- Solutions of organic acids (acetic acid, formic acid, and so on) in organic solvents. For example, a 1-% solution of acetic acid in methanol will attack steel.
- Solutions containing strong complexing agents (for example, EDTA, ethylene diamine tetra-acetic acid).
- Mixtures of carbon tetrachloride with 2-propanol or THF.

Radio Interference

Manufacturer's Declaration

This is to certify that this equipment is in accordance with the Radio Interference Requirements of Directive FTZ 1046/1984. The German Bundespost was notified that this equipment was put into circulation, the right to check the series for compliance with the requirements was granted.

Test and Measurement

If test and measurement equipment is operated with equipment unscreened cables and/or used for measurements on open set-ups, the user has to assure that under operating conditions the radio interference limits are still met within the premises.

Sound Emission

Manufacturer's Declaration

This statement is provided to comply with the requirements of the German Sound Emission Directive of 18 January 1991.

This product has a sound pressure emission (at the operator position) < 70 dB.

- Sound Pressure $L_p < 70$ dB (A)
- At Operator Position
- Normal Operation
- According to ISO 7779:1988/EN 27779/1991 (Type Test)

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In This Book

This book contains the following chapters:

- Chapter 1 “Description and Specifications” — The XY autosampler’s accessories described, and its specifications.
- Chapter 2 “Installation” — How to set up the XY autosampler.
- Chapter 3 “Operation” — How to operate the XY autosampler through the Agilent ChemStation.
- Chapter 4 “Maintenance and Repair” — Guidelines for maintaining your XY autosampler.
- Chapter 5 “Parts and Supplies” — Replacement parts for the XY autosampler.
- Chapter 6 “The Rear Panel” — Interface connectors at the rear panel of the XY autosampler.



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