Agilent 1290 Infinity Thermostat

User Manual

Agilent Technologies

Notices

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Contents

1 Introduction

Introduction to the Thermostat

The Agilent 1290 Infinity Thermostat is designed for use with other modules of the Agilent 1200 Infinity Series or with other LC systems if adequate remote control inputs and outputs are available. The thermostat is controlled from the Agilent 1200 Infinity Series Instant Pilot or from your Agilent control software for LC systems.

The specially-designed thermostattable sample trays holds either 100 × 1.8 mL vials or two wellplates and 10 × 1.8 mL vials.

The thermostat contains Peltier-controlled heat exchangers. A fan draws air from the area above the sample vial tray of the autosampler and then blows it through the fins of the cooling/heating module. There it is cooled or heated according to the temperature setting. The thermostatted air enters the autosampler through a recess underneath the specially-designed sample tray. The air is then distributed evenly through the sample tray ensuring effective temperature control, regardless of how many vials are in the tray.

In cooling mode condensation is generated on the cooled side of the Peltier elements. This condensed water is safely guided into the leak system.

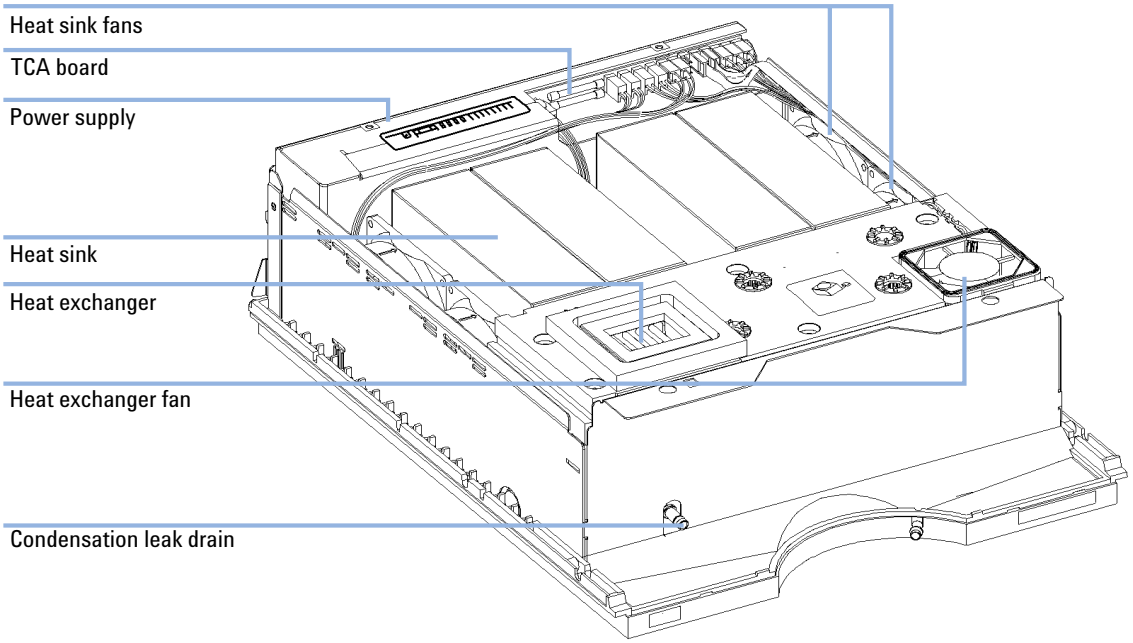


Figure 1 Overview of the Thermostat

Thermostat Operation

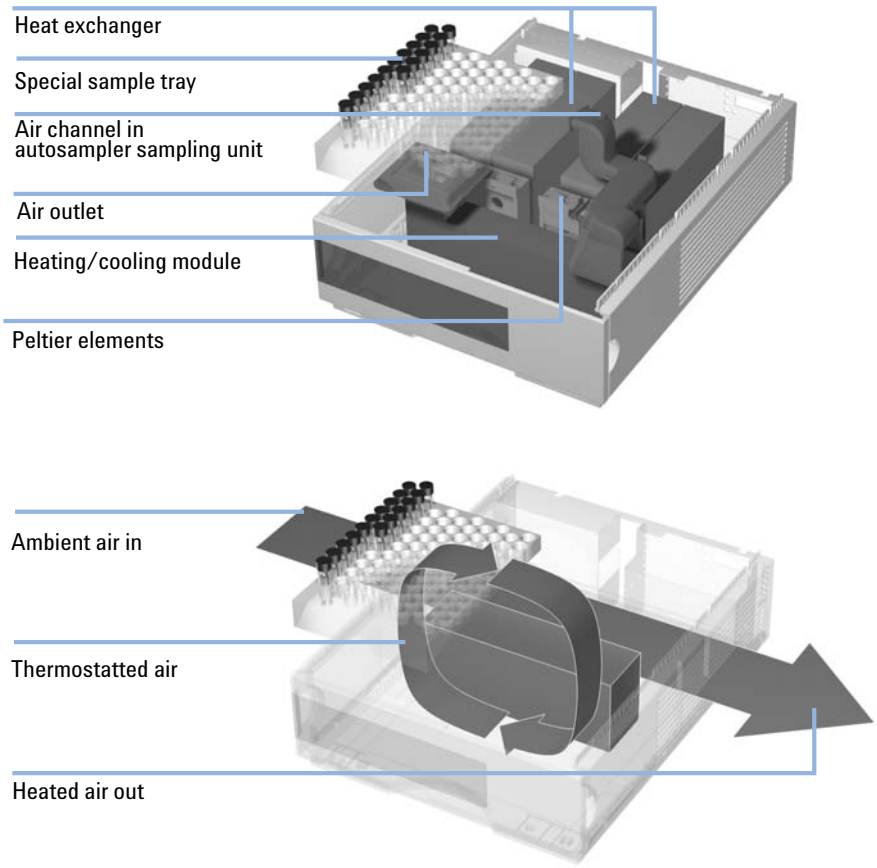


Figure 2 Thermostat Principle

The thermostat is equipped with a cooling/heating module which uses Peltier elements for efficient air cooling. When turned on the front side of the Peltier elements is heated/cooled according to the temperature setting. A fan draws air from the sample tray area and blows it through the channels of the heating/cooling module. The fan speed is determined according to the environmental conditions (e.g., ambient temperature, humidity). In the

heating/cooling module the air reaches the temperature of the Peltier elements and this thermostatted air is blown underneath the special sample tray where it is evenly distributed and streams back into the sample tray area. From there it is again drawn into the thermostat. This “recycle” mode assures a very efficient cooling/heating of the sample vials.

In cooling mode the opposite side of the Peltier element will become very hot and to maintain the performance of the elements they have to be cooled down. This is done with large heat exchangers in the back of the thermostat. Four fans blow air from left to right through the instrument to remove the heated air. The fan speed is controlled according to the temperature of the Peltier elements.

During cooling condensation will appear in the heating/cooling module. The condensed water will be guided out of the thermostat.

Electrical Connections

- The CAN bus is a serial bus with high speed data transfer. The two connectors for the CAN bus are used for internal module data transfer and synchronization.
- One analog output provides signals for integrators or data handling systems.
- The interface board slot is used for external contacts and BCD bottle number output or LAN connections.
- The REMOTE connector may be used in combination with other analytical instruments from Agilent Technologies if you want to use features such as start, stop, common shut down, prepare, and so on.
- With the appropriate software, the RS-232C connector may be used to control the module from a computer through a RS-232C connection. This connector is activated and can be configured with the configuration switch.
- The Thermostat-Autosampler connection is used for control signal transfer and synchronization of the two modules. The cable must be installed for operation of the autosampler thermostat.
- The power input socket accepts a line voltage of 100 – 240 VAC ± 10 % with a line frequency of 50 or 60 Hz. Maximum power consumption varies by module. There is no voltage selector on your module because the power supply has wide-ranging capability. There are no externally accessible fuses, because automatic electronic fuses are implemented in the power supply.

NOTE Never use cables other than the ones supplied by Agilent Technologies to ensure proper functionality and compliance with safety or EMC regulations.

Serial Number Information (ALL)

The serial number information on the instrument labels provide the following information:

CCYWWSSSSS	Format
CC	country of manufacturing • DE = Germany • JP = Japan • CN = China
YWW	year and week of last major manufacturing change, e.g. 820 could be week 20 of 1998 or 2008
SSSSS	real serial number

Rear View of the Module

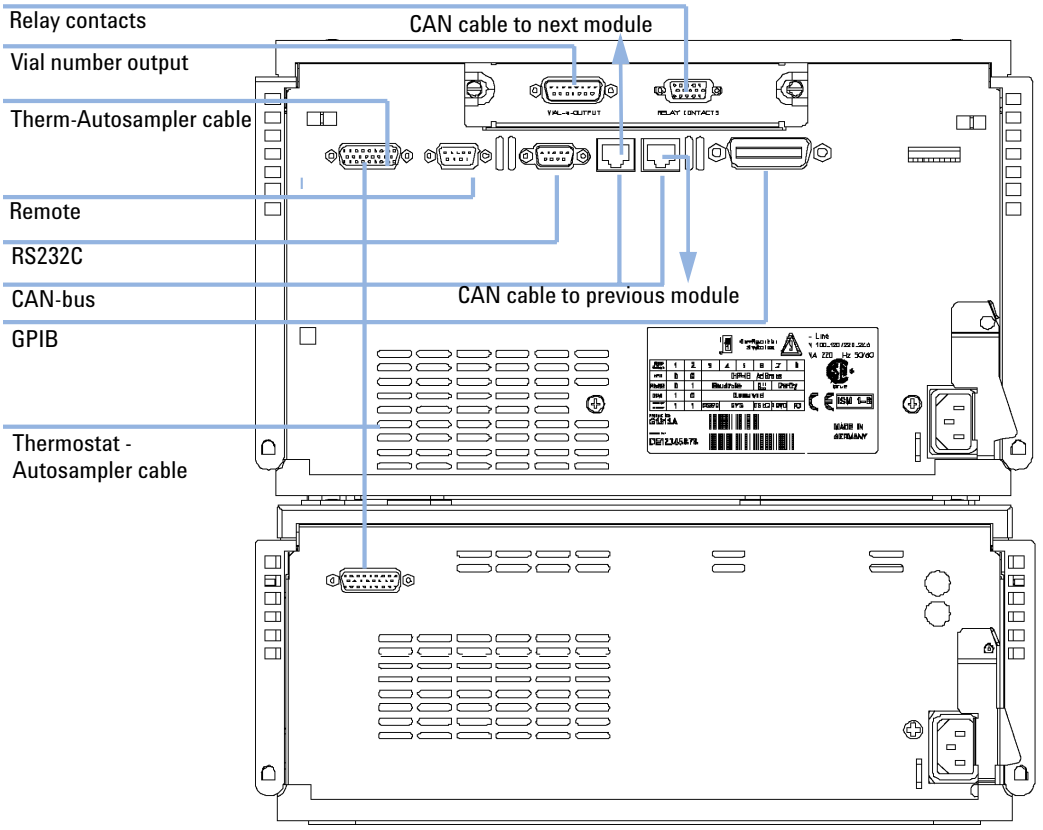


Figure 3 Electrical Connections

Early Maintenance Feetback

Maintenance requires the exchange of components which are subject to wear or stress. Ideally, the frequency at which components are exchanged should be based on the intensity of usage of the module and the analytical conditions, and not on a predefined time interval. The early maintenance feedback (**EMF**) feature monitors the usage of specific components in the instrument, and provides feedback when the user-selectable limits have been exceeded. The visual feedback in the user interface provides an indication that maintenance procedures should be scheduled.

EMF Counters

EMF counters increment with use and can be assigned a maximum limit which provides visual feedback in the user interface when the limit is exceeded. Some counters can be reset to zero after the required maintenance procedure.

Using the EMF Counters

The user-settable **EMF** limits for the **EMF Counters** enable the early maintenance feedback to be adapted to specific user requirements. The useful maintenance cycle is dependent on the requirements for use. Therefore, the definition of the maximum limits need to be determined based on the specific operating conditions of the instrument.

Setting the EMF Limits

The setting of the **EMF** limits must be optimized over one or two maintenance cycles. Initially the default **EMF** limits should be set. When instrument performance indicates maintenance is necessary, take note of the values displayed by the **EMF counters**. Enter these values (or values slightly less than the displayed values) as **EMF** limits, and then reset the **EMF counters** to zero. The next time the **EMF counters** exceed the new **EMF** limits, the **EMF** flag will be displayed, providing a reminder that maintenance needs to be scheduled.

2
Site Requirements and Specifications

Site Requirements

A suitable site environment is important to ensure optimum performance of the autosamplers.

Power Consideration

The autosamplers comprises two modules, the autosampler module (G1329A/B, G1367A-E, G1377A, G2260A) or fraction collector (G1364A-C, G1364D) and the thermostat module (G1330B). Both modules have a separate power supply and a power plug for the line connections. The two modules are connected by a control cable and both are turned on by the autosampler module.

The autosampler power supplies have automatic voltage selectors (see Table 1 on page 19). Consequently there are no voltage selectors in the rear of the two autosampler modules. The autosampler module has no externally accessible fuses, because automatic electronic fuses are implemented in its power supply. The autosampler thermostat power supply has two externally accessible fuses.

WARNING

Hazard of electrical shock or damage of your instrumentation

can result, if the devices are connected to a line voltage higher than specified.

➔ Connect your instrument to the specified line voltage only.

CAUTION

Unaccessable power plug.

In case of emergency it must be possible to disconnect the instrument from the power line at any time.

➔ Make sure the power connector of the instrument can be easily reached and unplugged.

➔ Provide sufficient space behind the power socket of the instrument to unplug the cable.

Power Cords

Different power cords are offered as options with the module. The female end of all power cords is identical. It plugs into the power-input socket at the rear. The male end of each power cord is different and designed to match the wall socket of a particular country or region.

WARNING

Absence of ground connection or use of unspecified power cord

The absence of ground connection or the use of unspecified power cord can lead to electric shock or short circuit.

➔ Never operate your instrumentation from a power outlet that has no ground connection.

➔ Never use a power cord other than the Agilent Technologies power cord designed for your region.

WARNING

Use of unsupplied cables

Using cables not supplied by Agilent Technologies can lead to damage of the electronic components or personal injury.

➔ Never use cables other than the ones supplied by Agilent Technologies to ensure proper functionality and compliance with safety or EMC regulations.

WARNING

Unintended use of supplied power cords

Using power cords for unintended purposes can lead to personal injury or damage of electronic equipment.

➔ Never use the power cords that Agilent Technologies supplies with this instrument for any other equipment.

Bench Space

The module dimensions and weight (see Table 1 on page 19) allow you to place the module on almost any desk or laboratory bench. It needs an additional 2.5 cm (1.0 inches) of space on either side and approximately 8 cm (3.1 inches) in the rear for air circulation and electric connections.

If the bench shall carry a complete HPLC system, make sure that the bench is designed to bear the weight of all modules.

The module should be operated in a horizontal position.

Environment

Your autosampler modules will work at ambient temperatures and relative humidity as described in Table 1 on page 19.

CAUTION

Condensation within the module

Condensation will damage the system electronics.

➔ Do not store, ship or use your module under conditions where temperature fluctuations could cause condensation within the module.

➔ If your module was shipped in cold weather, leave it in its box and allow it to warm slowly to room temperature to avoid condensation.

Physical Specifications

Table 1 Physical Specifications

Type	Specification	Comments
Weight	20.7 kg (46 lbs)	
Dimensions (height × width × depth)	140 × 345 × 435 mm (5.5 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10%	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5%	
Power consumption	260 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	4 – 40 °C (39 – 104 °F)	See warning "" on page 19
Ambient non-operating temperature	-40–70 °C (-4–158 °F)	
Humidity	< 95%, at 25–40 °C (77–104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	For indoor use only.

WARNING

Hot rear panel

Using the autosampler at high environmental temperatures may cause the rear panel to become hot.

➔ Do not use the autosampler at environmental temperatures higher than 50 °C (122 °F)

Performance Specifications

Table 2 Performance specifications Agilent 1290 Infinity Thermostat

Type	Specification
Temperature range:	settable from 4 °C to 40 °C in 1 ° increments
Temperature accuracy at ambient temperatures < 25 °C and humidity < 50 %	- 1 °C to + 4 °C at a setpoint of 4 °C
Temperature accuracy at ambient temperatures > 25 °C and/or humidity > 50 %	- 1 °C to + 5 °C at a setpoint of 4 °C

3
Installing the G1330B Thermostat

Damaged Packaging

If the delivery packaging shows signs of external damage, please call your Agilent Technologies sales and service office immediately. Inform your service representative that the instrument may have been damaged during shipment.

CAUTION

"Defective on arrival" problems

If there are signs of damage, please do not attempt to install the module. Inspection by Agilent is required to evaluate if the instrument is in good condition or damaged.

➔ Notify your Agilent sales and service office about the damage.

➔ An Agilent service representative will inspect the instrument at your site and initiate appropriate actions.

Delivery Checklist

Unpack the two boxes of the autosampler. Ensure all parts and materials have been delivered with the autosampler and the autosampler thermostat. The delivery checklist are shown in Table 3 on page 22. Please report missing or damaged parts to your local Agilent Technologies sales and service office.

Table 3 G1330B Thermostat Checklist

Description	Quantity	Part Number
Autosampler Thermostat G1330B	1	
Power cable	1	as ordered
Accessory kit G1330-38755("Accessory Kit G1330-68755" on page 68)	1	G1330-68755
HPLC System Tool Kit G4203-68708, optional ("HPLC System Tool Kit (G4203-68708)" on page 69)	1	G4203-68708

Optimizing the Stack Configuration

If your autosampler is part of a system, you can ensure optimum performance by installing the autosampler in the stack in the position shown in Figure 4 on page 23 and Figure 5 on page 24. This configuration optimizes the system flow path, ensuring minimum delay volume.

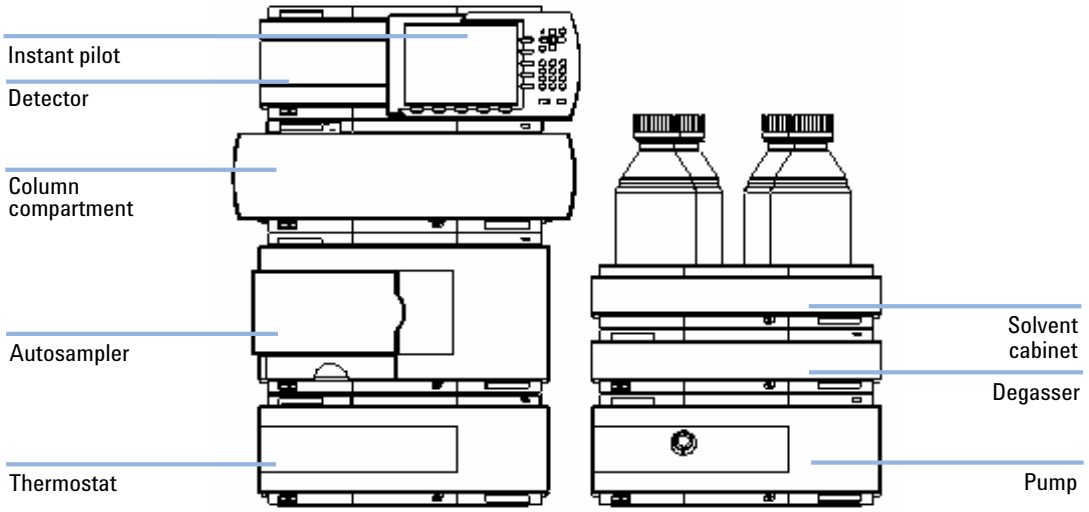


Figure 4 Recommended Stack Configuration (Front View)

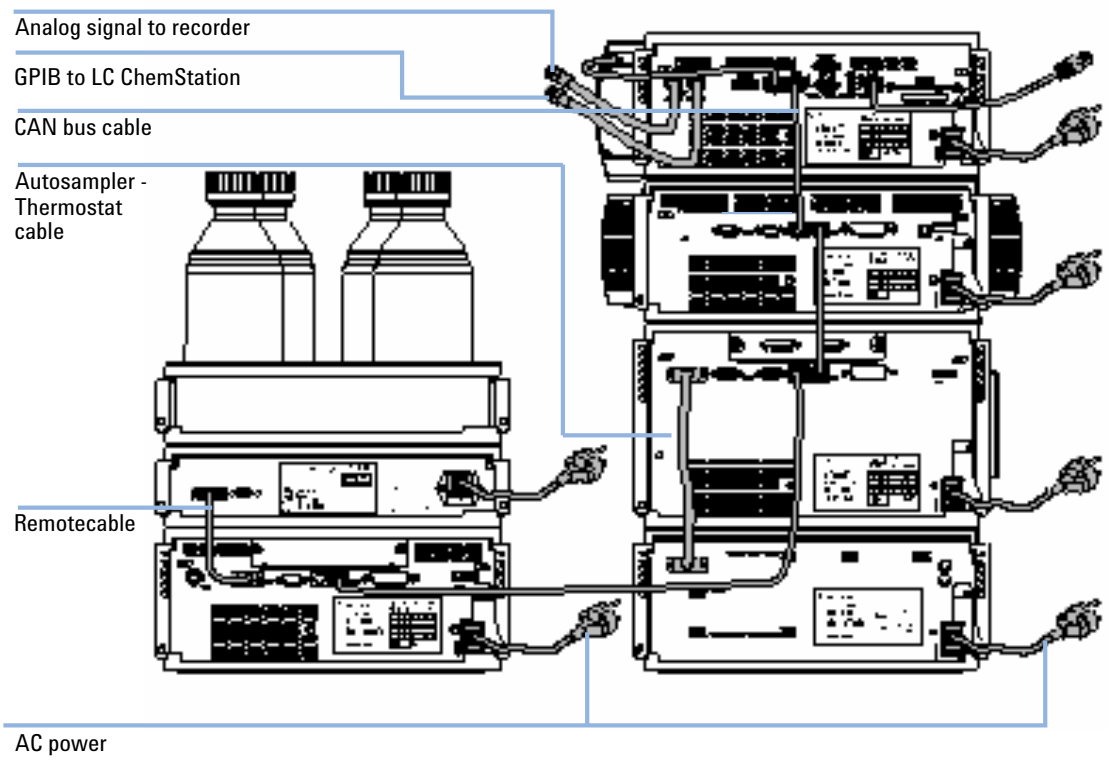


Figure 5 Recommended Stack Configuration (Rear View)

Installing the G1330B Thermostat

WARNING

Module is partially energized when switched off, as long as the power cord is plugged in.

Repair work at the module can lead to personal injuries, e.g. shock hazard, when the cover is opened and the module is connected to power.

➔ Make sure that it is always possible to access the power plug.

➔ Remove the power cable from the instrument before opening the cover.

➔ Do not connect the power cable to the Instrument while the covers are removed.

WARNING

Personal injury

To avoid personal injury, keep fingers away from the needle area during autosampler operation.

➔ Do not bend the safety flap away from its position, or attempt to remove the safety cover (see).

➔ Do not attempt to insert or remove a vial from the gripper when the gripper is positioned below the needle.

CAUTION

"Defective on arrival" problems

If there are signs of damage, please do not attempt to install the module. Inspection by Agilent is required to evaluate if the instrument is in good condition or damaged.

➔ Notify your Agilent sales and service office about the damage.

➔ An Agilent service representative will inspect the instrument at your site and initiate appropriate actions.

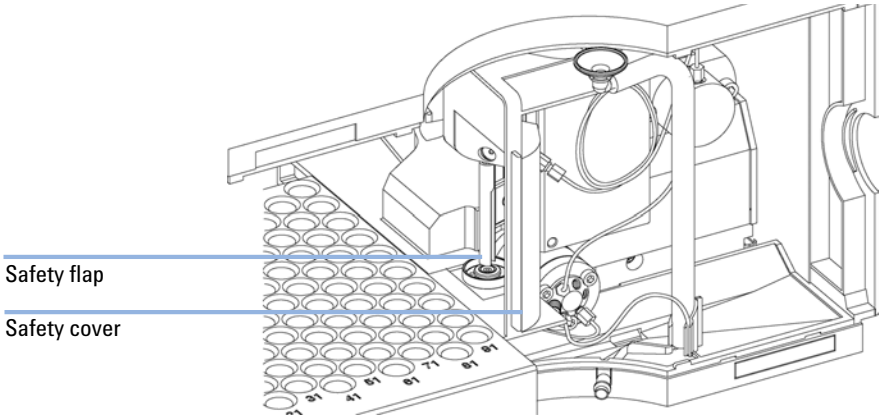


Figure 6 Safety Flap.

Stage 1: Preparing the Thermostat and Autosampler

CAUTION

Damage through condensation

If the condensation tube is located in liquid the condensed water cannot flow out of the tube and the outlet is blocked. Any further condensation will then remain in the instrument. This may damage the instruments electronics.

➔ Make sure that the condensation tube is always above the liquid level in the vessel.

NOTE

Even under average humidity conditions, a significant amount of condensed water gathers every day. A suitable container must be provided and emptied regularly in order to avoid overflow.

1 Place the thermostat on the bench or in the stack.

2 Remove the front cover. Press the two snap fasteners on the sides of the cover and move it away.

3 If the thermostat is located on top of another Agilent 1200 Infinity Series module place the waste tube assembly into the top cover of the thermostat and locate the other end in the waste funnel of the module beneath.

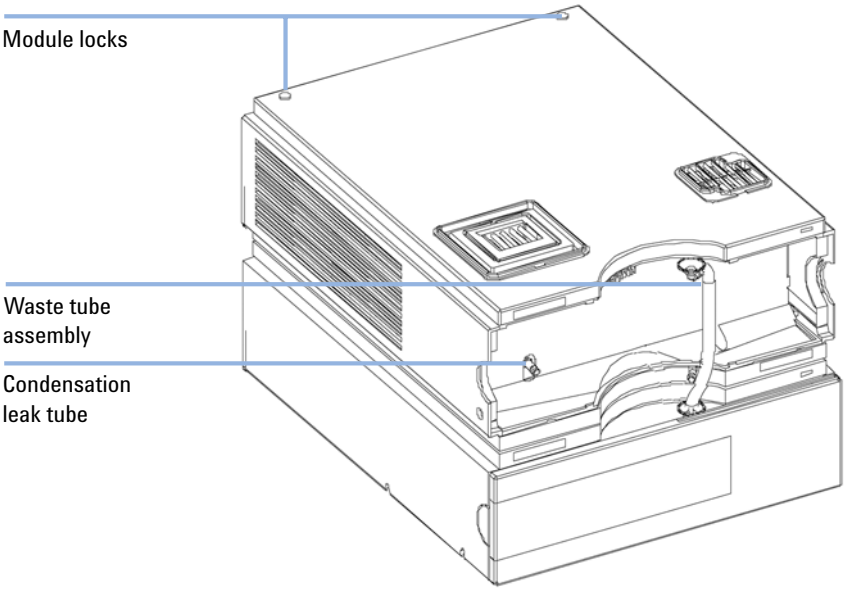


Figure 7 Preparation of the Thermostat

4 Connect the condensation leak tube to the main waste exit of the thermostat and place into an appropriate vessel. It is possible to either let the condensation leak tubing exit the module at the front or at the left side of the module. Make sure that the leak tube is fully fixed on the outlet.

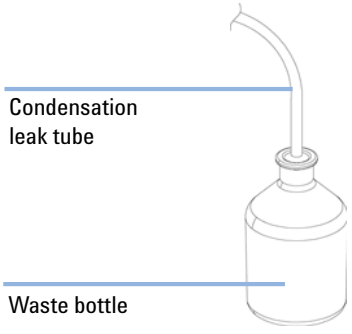


Figure 8 Condensation Leak outlet

5 Install the front cover of the thermostat.

6 Place the autosampler module on top of the thermostat. Make sure that the autosampler is correctly engaged in the thermostat locks.

7 Place the air channel adapter into the autosampler tray base. Make sure the adapter is fully pressed down. This assures that the cold airstream from the thermostat is correctly guided to the tray area of the autosampler.

8 If there is no Agilent 1260/1290 Infinity Series module located beneath the thermostat connect the waste tube to the central waste exit of the autosampler and place in a waste vessel.

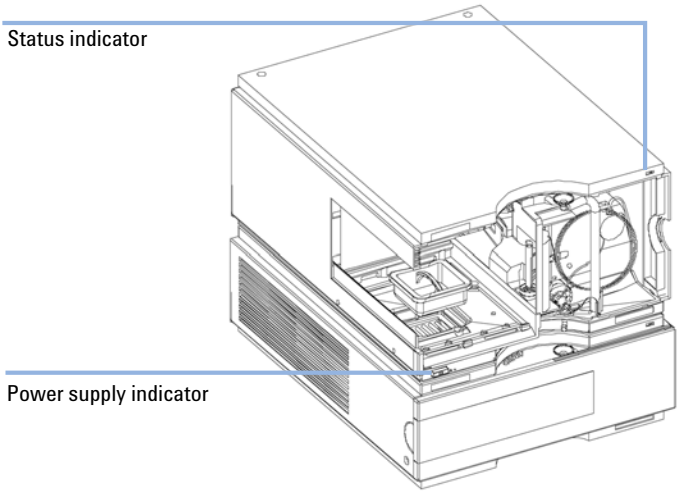


Figure 9 Preparation of Thermostat and Autosampler

Stage 2: Power Cable and Interface Cable Connection

CAUTION

Damaged electronics

Disconnecting or reconnecting the autosampler to autosampler thermostat cable when the power cords are connected to either of the two modules will damage the electronics of the modules. In such a case, mainboards of both instruments must be exchanged, otherwise they can damage the other instrument.

➔ Make sure the power cords are unplugged before disconnecting or reconnecting the autosampler to autosampler thermostat cable.

1 Ensure the power switch on the front of the autosampler is OFF and the power cables are disconnected.

2 Connect the cable between the autosampler and the thermostat, see Figure 10 on page 30.

3 Move the safety lever at the rear of the two modules to the right position, see Figure 10 on page 30.

4 Connect the power cables to the power connectors.

5 Connect the CAN interface cables to other modules in the system (see Figure 5 on page 24 and Figure 11 on page 31).

6 If required, connect additional interface and control cables to the autosampler (see Figure 5 on page 24 and Figure 11 on page 31). Refer to the documentation of the Agilent 1200 Infinity Series Instant Pilot or ChemStation for LC for more information.

NOTE

In an Agilent 1290 Infinity system, the individual modules are connected by a CAN cable. The Agilent 1200 Infinity Series Instant Pilot can be connected to the CAN bus at any of the modules in the system. The control software can be connected to the system by one GPIB cable at any of the modules. If an Agilent detector is part of the system, the LAN connection must be at the detector. For more information about connecting the instant pilot or control software refer to the respective user manual. For connecting the Agilent 1290 Infinity equipment to non-Agilent 1290 Infinity equipment, see Autosampler manual).

7 Connect additional cables as required (see Figure 11 on page 31).

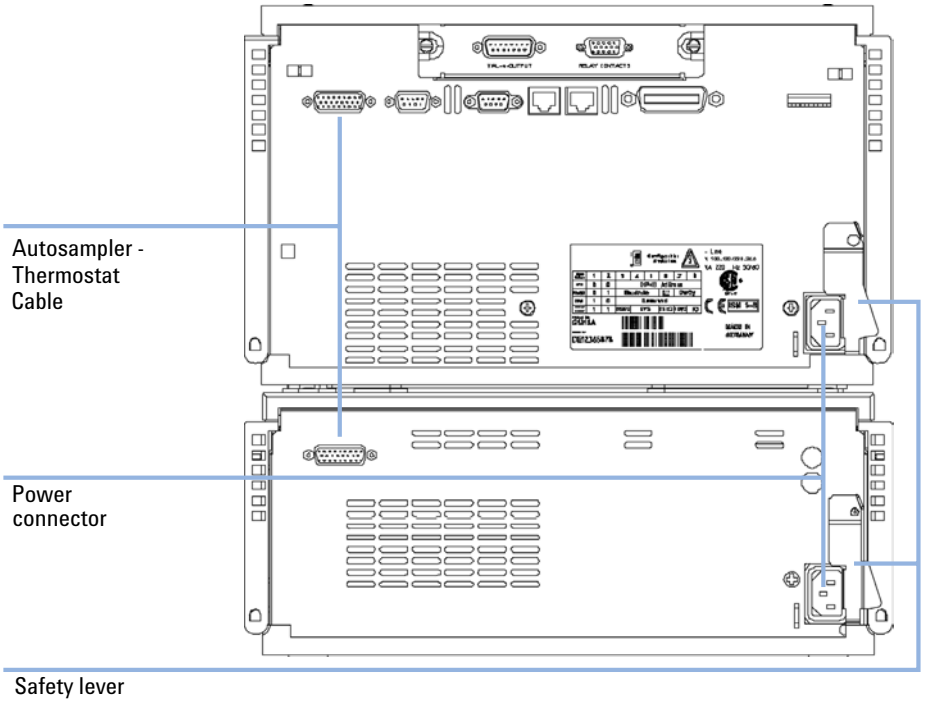


Figure 10 Power Connectors and Safety Levers at Rear of thermostatted Autosampler.

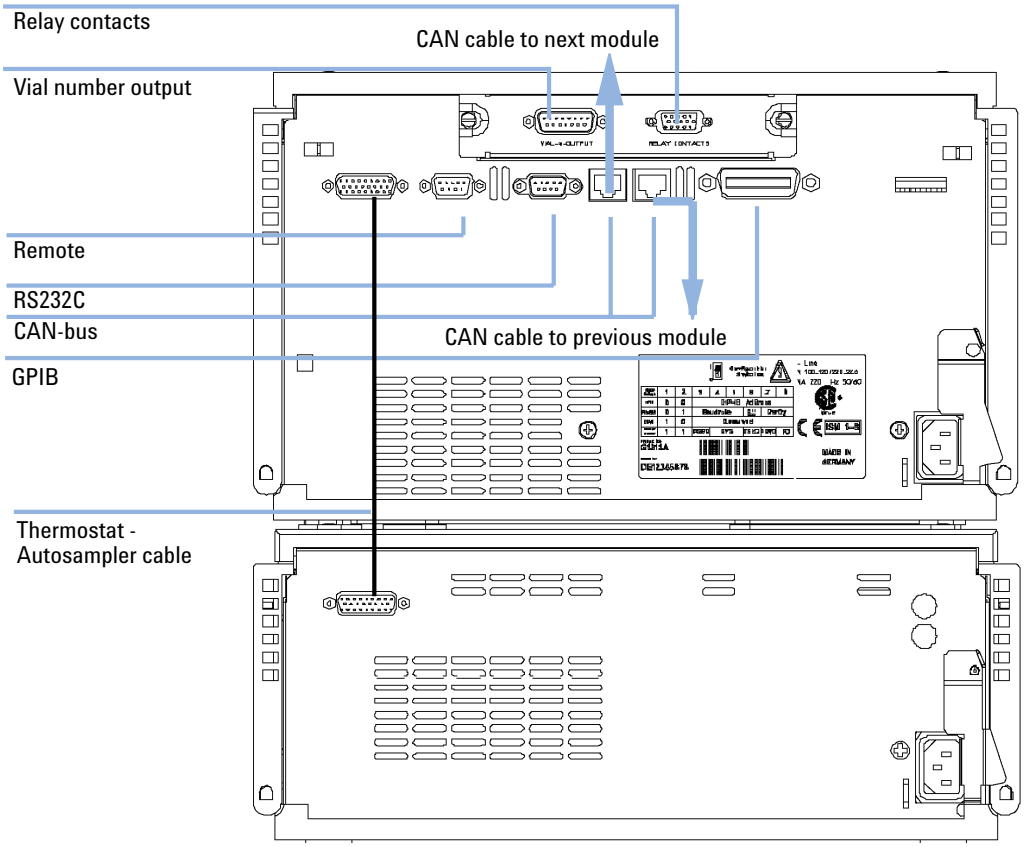


Figure 11 Cable Connections.

Stage 3: Flow Connections

WARNING

When opening capillary or tube fittings solvents may leak out.

The handling of toxic and hazardous solvents and reagents can hold health risks.

➔ Please observe appropriate safety procedures (for example, goggles, safety gloves and protective clothing) as described in the material handling and safety data sheet supplied by the solvent vendor, especially when toxic or hazardous solvents are used.

1 Connect the pump outlet capillary to port 1 of the injection valve.

2 Connect column-compartment inlet capillary to port 6 of the injection valve.

3 Ensure that the waste tube is positioned inside the leak channel.

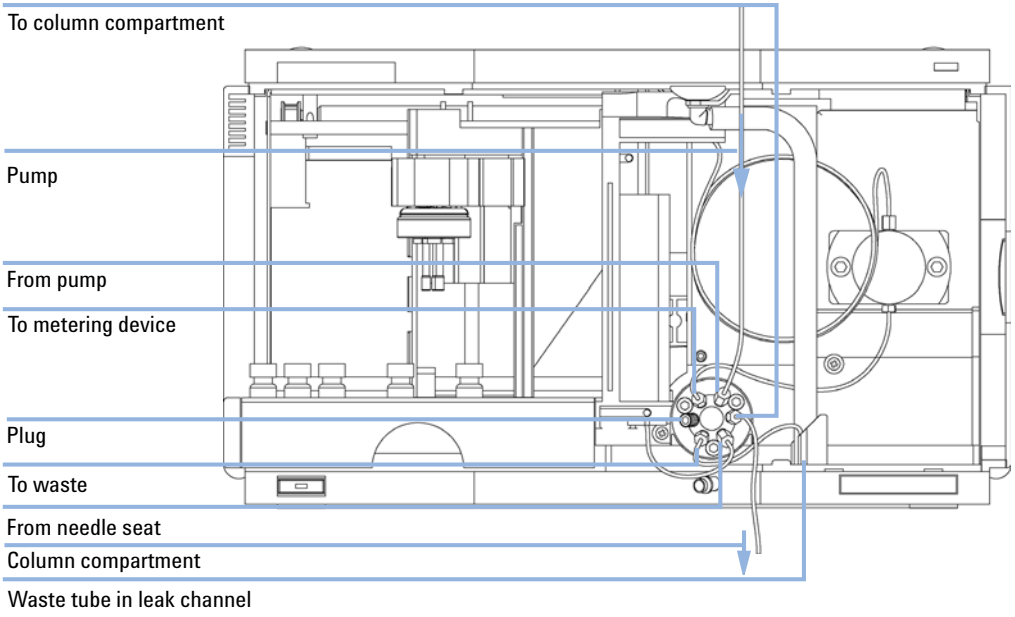


Figure 12 Hydraulic Connections

Stage 4: Installing the Sample Tray

1 Load the sample tray with sample vials as required.

2 Slide the sample tray into the autosampler so that the rear of the sample tray is seated firmly against the rear of the sample-tray area.

3 Press the front of the sample tray down to secure the tray in the autosampler. If the tray pops out of its position the air channel adapter is not inserted correctly.

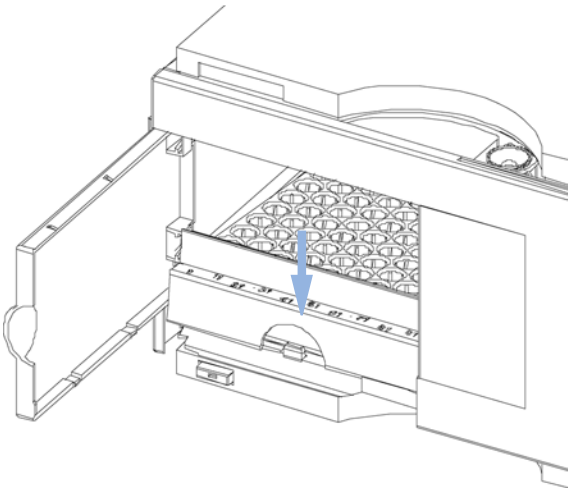


Figure 13 Installing the Sample Tray

Half-Tray Combinations

NOTE In the autosampler only the 100 vial tray is supported for temperature control of the vials. Nevertheless the half trays of the standard autosampler (G1329C) can be used in the thermostatted autosampler as well. However when these trays are installed cooling or heating of the vials in the tray will not work.

Half-trays can be installed in any combination enabling both 1.8 ml-and 6 ml-vials to be used simultaneously.

Numbering of Vial Positions

The standard 100-vial tray has vial positions 1 to 100. However, when using two half-trays, the numbering convention is slightly different. The vial positions of the right-hand half tray begin at position 101 as follows:

Left-hand 40-position tray: 1–40

Left-hand 15-position tray: 1–15

Right-hand 40-position tray: 101–140

Right-hand 15-position tray: 101–115

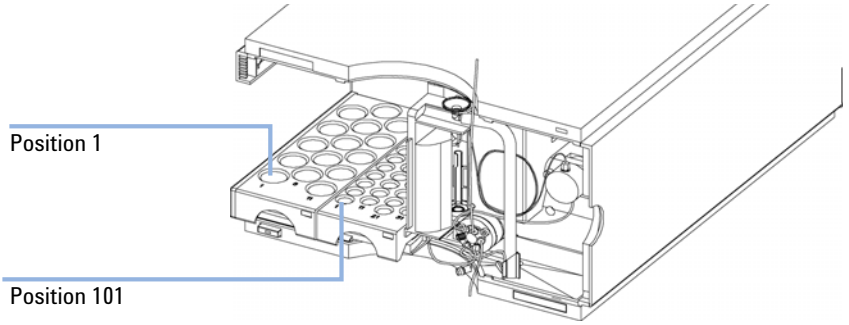


Figure 14 Numbering of Tray Positions.

Stage 5: Installing Tray Cover and Front Cover

1 Fix the tray cover in the clips of the left autosampler cover side by sliding it in position. Do not close the tray cover.

2 Position the front cover in the top left corner of the autosampler and turn it towards the instrument. Press the stop fastener to secure it in the right side cover of the autosampler.

3 Close the tray cover.

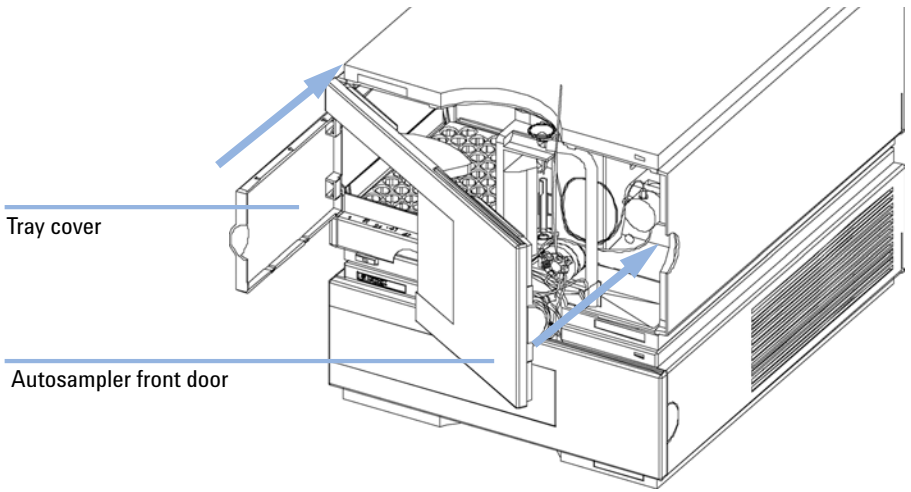


Figure 15 Installation of Tray Cover and Front Cover of the Autosampler

Stage 6: Turning on the Thermostatted Autosampler

1 Depress the power switch to turn on the two modules of the autosampler.

NOTE The power switch stays depressed (1) and a green indicator lamp in the power switch is on when the autosampler is turned on. When the line power switch stands out (Ø) and the green light is off, the autosampler is turned off.

Transporting the Thermostatted Autosampler

When moving the autosampler around the laboratory, make sure that any condensed water inside the thermostat is removed. Tilt the module to the front, so that the water inside the thermostat can safely flow into the leak funnel. Otherwise no special precautions are needed for the modules.

NOTE The autosampler thermostat is heavy (20.7 kg, 45.6 lbs). Carry the module by putting your hands under the side covers in a central position of the unit.

CAUTION *Mechanical damage of the module*

If the transport assembly is not parked, the module could be damaged due to excessive shock of the shipping container during transport.

➔ Always park the transport assembly before shipment.

If the autosampler needs to be shipped to another location via carrier, ensure:

- The two modules are shipped in separate boxes.
- The transport assembly of the autosampler is parked, see “Park Arm (Park Gripper)” in your respective Service Manual.
- The vial tray is secured.

If the autosampler is to be shipped to another location, the transport assembly of the autosampler must be moved to the park position to prevent mechanical damage should the shipping container be subjected to excessive shock. Also, ensure the vial tray is secured in place with suitable packaging, otherwise the tray may become loose and damage internal components.

4
Troubleshooting and Diagnostics

Agilent Lab Advisor Software

The Agilent Lab Advisor software is a standalone product that can be used with or without data system. Agilent Lab Advisor software helps to manage the lab for high quality chromatographic results and can monitor in real time a single Agilent LC or all the Agilent GCs and LCs configured on the lab intranet.

Agilent Lab Advisor software provides diagnostic capabilities for all Agilent 1200 Infinity Series modules. This includes diagnostic capabilities, calibration procedures and maintenance routines for all the maintenance routines.

The Agilent Lab Advisor software also allows users to monitor the status of their LC instruments. The Early Maintenance Feedback (EMF) feature helps to carry out preventive maintenance. In addition, users can generate a status report for each individual LC instrument. The tests and diagnostic features as provided by the Agilent Lab Advisor software may differ from the descriptions in this manual. For details refer to the Agilent Lab Advisor software help files.

This manual provides lists with the names of Error Messages, Not Ready messages, and other common issues.

Overview of the Thermostat's Indicators and Test Functions

Status Indicators

The thermostatted autosampler is provided with two status indicators which indicate the operational state (prerun, run, and error states) of the instrument. Both are located on the autosampler module. The status indicators provide a quick visual check of the operation of the thermostatted autosampler (see "Status Indicators" on page 40).

Error Messages

In the event of an electronic, mechanical or hydraulic failure, the instrument generates an error message in the user interface. For details on error messages and error handling, please refer to the Agilent Lab Advisor software.

Status Indicators

Two status indicators are located on the front of the autosampler. The lower left indicates the power supply status, the upper right indicates the thermostatted autosampler status.

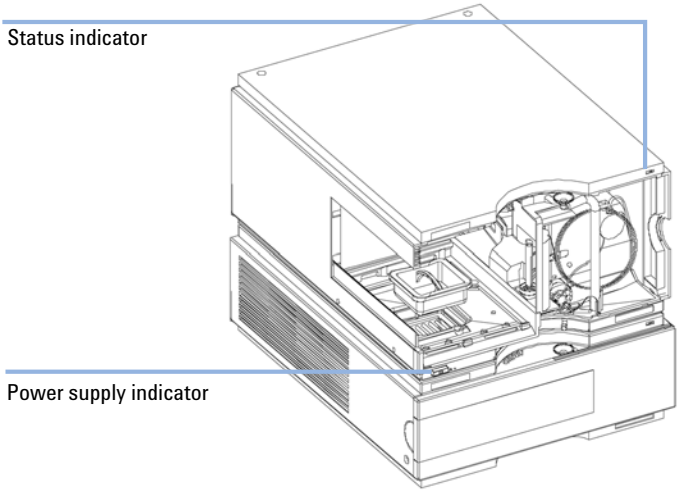


Figure 16 Location of Status Indicators

Power Supply Indicator

The power supply indicator is integrated into the main power switch. When the indicator is illuminated (*green*) the power is ON.

Instrument Status Indicator

The instrument status indicator indicates one of four possible instrument conditions:

- When the status indicator is OFF (and power switch light is on), the instrument is in a *prerun* condition, and is ready to begin an analysis.
- A *green* status indicator, indicates the instrument is performing an analysis (*run* mode).
- A *yellow* indicator indicates a *not-ready* condition. The instrument is in a not-ready state when it is waiting for a specific condition to be reached or completed (for example, front cover not installed), or while a self-test procedure is running.
- An *error* condition is indicated when the status indicator is *red*. An error condition indicates the instrument has detected an internal problem which affects correct operation of the instrument. Usually, an error condition requires attention (for example, leak, defective internal components). An error condition always interrupts the analysis.

5 Error Information

This chapter describes the meaning of error messages, and provides information on probable causes and suggested actions how to recover from error conditions.

What Are Error Messages

Error messages are displayed in the user interface when an electronic, mechanical, or hydraulic (flow path) failure occurs which requires attention before the analysis can be continued (for example, repair, or exchange of consumables is necessary). In the event of such a failure, the red status indicator at the front of the module is switched on, and an entry is written into the module logbook.

General Error Messages

General error messages are generic to all Agilent series HPLC modules and may show up on other modules as well.

Timeout

The timeout threshold was exceeded.

Probable cause	Suggested actions
1 The analysis was completed successfully, and the timeout function switched off the module as requested.	Check the logbook for the occurrence and source of a not-ready condition. Restart the analysis where required.
2 A not-ready condition was present during a sequence or multiple-injection run for a period longer than the timeout threshold.	Check the logbook for the occurrence and source of a not-ready condition. Restart the analysis where required.

Shut-Down

An external instrument has generated a shut-down signal on the remote line.

The module continually monitors the remote input connectors for status signals. A LOW signal input on pin 4 of the remote connector generates the error message.

Probable cause	Suggested actions
1 Leak detected in another module with a CAN connection to the system.	Fix the leak in the external instrument before restarting the module.
2 Leak detected in an external instrument with a remote connection to the system.	Fix the leak in the external instrument before restarting the module.
3 Shut-down in an external instrument with a remote connection to the system.	Check external instruments for a shut-down condition.

Remote Timeout

A not-ready condition is still present on the remote input. When an analysis is started, the system expects all not-ready conditions (for example, a not-ready condition during detector balance) to switch to run conditions within one minute of starting the analysis. If a not-ready condition is still present on the remote line after one minute the error message is generated.

Probable cause	Suggested actions
1 Not-ready condition in one of the instruments connected to the remote line.	Ensure the instrument showing the not-ready condition is installed correctly, and is set up correctly for analysis.
2 Defective remote cable.	Exchange the remote cable.
3 Defective components in the instrument showing the not-ready condition.	Check the instrument for defects (refer to the instrument's documentation).

Synchronization Lost

During an analysis, the internal synchronization or communication between one or more of the modules in the system has failed.

The system processors continually monitor the system configuration. If one or more of the modules is no longer recognized as being connected to the system, the error message is generated.

Probable cause	Suggested actions
1 CAN cable disconnected.	• Ensure all the CAN cables are connected correctly. • Ensure all CAN cables are installed correctly.
2 Defective CAN cable.	Exchange the CAN cable.
3 Defective main board in another module.	Switch off the system. Restart the system, and determine which module or modules are not recognized by the system.

Leak Sensor Short

The leak sensor in the module has failed (short circuit).

The current through the leak sensor is dependent on temperature. A leak is detected when solvent cools the leak sensor, causing the leak-sensor current to change within defined limits. If the current increases above the upper limit, the error message is generated.

Probable cause	Suggested actions
1 Defective flow sensor.	Please contact your Agilent service representative.
2 Leak sensor incorrectly routed, being pinched by a metal component.	Please contact your Agilent service representative.

Leak Sensor Open

The leak sensor in the module has failed (open circuit).

The current through the leak sensor is dependent on temperature. A leak is detected when solvent cools the leak sensor, causing the leak-sensor current to change within defined limits. If the current falls outside the lower limit, the error message is generated.

Probable cause	Suggested actions
1 Leak sensor not connected to the main board.	Please contact your Agilent service representative.
2 Defective leak sensor.	Please contact your Agilent service representative.
3 Leak sensor incorrectly routed, being pinched by a metal component.	Please contact your Agilent service representative.

Compensation Sensor Open

The ambient-compensation sensor (NTC) on the main board in the module has failed (open circuit).

The resistance across the temperature compensation sensor (NTC) on the main board is dependent on ambient temperature. The change in resistance is used by the leak circuit to compensate for ambient temperature changes. If the resistance across the sensor increases above the upper limit, the error message is generated.

Probable cause	Suggested actions
1 Defective main board.	Please contact your Agilent service representative.

Compensation Sensor Short

The ambient-compensation sensor (NTC) on the main board in the module has failed (short circuit).

The resistance across the temperature compensation sensor (NTC) on the main board is dependent on ambient temperature. The change in resistance is used by the leak circuit to compensate for ambient temperature changes. If the resistance across the sensor falls below the lower limit, the error message is generated.

Probable cause	Suggested actions
1 Defective main board.	Please contact your Agilent service representative.

Fan Failed

The cooling fan in the module has failed.

The hall sensor on the fan shaft is used by the main board to monitor the fan speed. If the fan speed falls below a certain limit for a certain length of time, the error message is generated.

Probable cause	Suggested actions
1 Fan cable disconnected.	Please contact your Agilent service representative.
2 Defective fan.	Please contact your Agilent service representative.
3 Defective main board.	Please contact your Agilent service representative.

Leak

A leak was detected in the module.

The signals from the two temperature sensors (leak sensor and board-mounted temperature-compensation sensor) are used by the leak algorithm to determine whether a leak is present. When a leak occurs, the leak sensor is cooled by the solvent. This changes the resistance of the leak sensor which is sensed by the leak-sensor circuit on the main board.

Probable cause	Suggested actions
1 Loose fittings.	Ensure all fittings are tight.
2 Broken capillary.	Exchange defective capillaries.

Open Cover

The top foam has been removed.

Probable cause	Suggested actions
1 Foam not activating the sensor.	Please contact your Agilent service representative.
2 Dirty or defective sensor.	Please contact your Agilent service representative.

Cover Violation

The top foam has been removed.

The sensor on the main board detects when the top foam is in place. If the foam is removed while the lamp is on (or if an attempt is made to switch on for example the lamp with the foam removed), the lamp is switched off, and the error message is generated.

Probable cause	Suggested actions
1 The top foam was removed during operation.	Please contact your Agilent service representative.
2 Foam not activating the sensor.	Please contact your Agilent service representative.

Thermostat Error Messages

Error messages are displayed in the user interface when an electronic failure occurs with the autosampler thermostat module which requires attention. In the event of such a failure, the red status indicator at the front of the thermostatted autosampler is switched on, and an entry is written into the instrument log book.

This section describes the meaning of autosampler thermostat module error messages, and provides information on probable causes and suggested actions how to recover from error conditions.

Fan Failed

Each fan in the thermostat is equipped with a speed sensor, that allows monitoring and control the speed of the fans. If the sensor shows no signal, when the fan is activated, it is very likely that the fan is defective. The number in brackets indicates the fan position. Position numbers of the fans are as follows (seen from front of the thermostat)

- **fan failed 1** - left side, fan in front position
- **fan failed 2** - left side, fan in back position
- **fan failed 3** - right side, fan in back position
- **fan failed 4** - right side, fan in front position
- **fan failed 5** - small cooler fan on top of cooling / heating module

	Probable cause	Suggested actions
1	One of the 4 heat-sink fans is defective.	See *Service Manual* for Exchanging the Heatsink Fans.
2	The cooling heating module fan is defective	See *Service Manual* for Exchanging Heat Exchanger Fan.

Temperature Control Failed (1 - 4)

There are four Peltier elements build into the autosampler thermostat for efficient cooling / heating. The electronics monitor the current through the Peltier elements. If the Peltier current is out of a specified limit the Peltier element is defective.

Probable cause	Suggested actions
1 One of the four peltier elements is defective.	Peltier elements can not be replaced on-site. Please contact Agilent Technologies service organization to initiate instrument exchange process.

Temperature Sensor Failed (1 - 4)

The autosampler thermostat is equipped with four sensors to monitor the performance of the instrument. The sensors are connected to both sides of the Peltier elements for control of the cooling / heating efficiency. As the positioning of the sensor is critical to meet the performance requirements of the autosampler thermostat the single sensors cannot be replaced separately.

Probable cause	Suggested actions
1 Temperature sensor is defective	See *Service Manual* for Exchanging the Sensors.

Lost Contact to Autosampler Thermostat

The autosampler control electronics continuously checks whether the autosampler thermostat is active or not.

Probable cause	Suggested actions
1 Bad cable connection between autosampler and autosampler thermostat	Check cable connection between autosampler and autosampler thermostat
2 Cable between autosampler and thermostat module not connected	Connect cable between autosampler and autosampler thermostat
3 Defective electronic board in autosampler or autosampler thermostat	• Exchange ASM board in the autosampler • Exchange TCA board in the thermostat • Contact the Agilent Technologies service organization

Power Fail for Autosampler Thermostat Module

The +36V that is generated in the autosampler thermostat power supply is checked by the autosampler electronics. If this voltage is missing the error message will be generated.

Probable cause	Suggested actions
1 Autosampler thermostat module not connected to line power	Check correct power line connection
2 Autosampler thermostat module fuse(s) defective	Check fuse(s) and replace if defective
3 Autosampler thermostat power supply defective	Contact the Agilent Technologies service organization

Temperature out of Range

To protect the Peltier elements for damage their working range is limited to -3°C to 65°C. The error message is generated when at least one of the three Peltier elements exceeds this limit.

Probable cause	Suggested actions
1 The four main heat exchanger fans are not able to blow enough air through the autosampler thermostat	• Clean the air filters and heat exchanger fins in the autosampler thermostat. Switch off the thermostat and wait 10 min for the peltier elements to equilibrate • Make sure that there is enough space on left and right side of the autosampler thermostat and that the air channel inlets and outlets are not blocked
2 Ambient temperature too high / low	Make sure that the ambient air temperature is within its specified limits (4 °C to 55 °C)

Bad Cooling / Heating Performance

When turned on the autosampler thermostat Peltier elements are activated according to the given setpoint or to given setpoint change. The electronics check whether there actual temperature is moving in the correct direction (e.g., decreasing when cooled down).

Probable cause	Suggested actions
1 Peltier element(s) defective	Contact the Agilent Technologies service organization
2 Peltier element(s) not connected or incorrectly connected (e.g., after repair or maintenance)	Check connections of the Peltier elements
3 The four main heat exchanger fans are not able to blow enough air through the autosampler thermostat	• Clean the air filters and heat exchanger fins in the autosampler thermostat. Switch off the thermostat and wait 10 min for the peltier elements to equilibrate • Make sure that there is enough space on left and right side of the autosampler thermostat and that the air channel inlets and outlets are not blocked

6 Maintenance

Warnings and Cautions

CAUTION

Damaged electronics

Disconnecting or reconnecting the autosampler to autosampler thermostat cable when the power cords are connected to either of the two modules will damage the electronics of the modules. In such a case, mainboards of both instruments must be exchanged, otherwise they can damage the other instrument.

➔ Make sure the power cords are unplugged before disconnecting or reconnecting the autosampler to autosampler thermostat cable.

WARNING

Module is partially energized when switched off, as long as the power cord is plugged in.

Risk of stroke and other personal injury. Repair work at the module can lead to personal injuries, e. g. shock hazard, when the module cover is opened and the instrument is connected to power.

➔ Never perform any adjustment, maintenance or repair of the module with the top cover removed and with the power cord plugged in.

➔ The security lever at the power input socket prevents that the module cover is taken off when line power is still connected. Never plug the power line back in when cover is removed.

WARNING

Sharp metal edges

Sharp-edged parts of the equipment may cause injuries.

➔ To prevent personal injury, be careful when getting in contact with sharp metal areas.

WARNING

Toxic, flammable and hazardous solvents, samples and reagents

The handling of solvents, samples and reagents can hold health and safety risks.

- ➔ When working with these substances observe appropriate safety procedures (for example by wearing goggles, safety gloves and protective clothing) as described in the material handling and safety data sheet supplied by the vendor and follow good laboratory practice.
- ➔ The amount of substances should be reduced to the minimal volume required for the analysis.
- ➔ Do not operate the instrument in an explosive atmosphere.

CAUTION

Safety standards for external equipment

- ➔ If you connect external equipment to the instrument, make sure that you only use accessory units tested and approved according to the safety standards appropriate for the type of external equipment.

Introduction to Maintenance

The module is designed for easy maintenance. Maintenance can be done from the front with module in place in the system stack.

NOTE

There are no serviceable parts inside.

Do not open the module.

Cleaning the Module

The module case should be kept clean. Cleaning should be done with a soft cloth slightly dampened with water or a solution of water and mild detergent. Do not use an excessively damp cloth as liquid may drip into the module.

WARNING

Liquid dripping into the electronic compartment of your module.

Liquid in the module electronics can cause shock hazard and damage the module.

➔ Do not use an excessively damp cloth during cleaning.

➔ Drain all solvent lines before opening any fittings.

Exchanging the Power Supply Fuses

The fuse holders are located on the rear panel of the thermostat.

When If wrong fuses are installed. Required is 2.5A fuses.

Tools required
- Flat head screwdriver

Parts required

#	Description
2110-0015	Fuses T2.5 A/250V (CSA, UL listed)

CAUTION

Damaged electronics

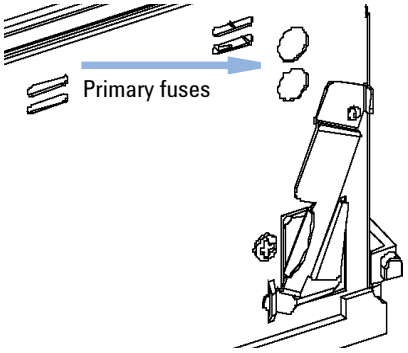
Disconnecting or reconnecting the autosampler to autosampler thermostat cable when the power cords are connected to either of the two modules will damage the electronics of the modules. In such a case, mainboards of both instruments must be exchanged, otherwise they can damage the other instrument.

➔ Make sure the power cords are unplugged before disconnecting or reconnecting the autosampler to autosampler thermostat cable.

1 Switch OFF the power switch at the front of the thermostatted autosampler.

2 Remove the power cable from the two modules.

3 Insert the flat head screwdriver in the fuse holder, slightly press and turn counter clockwise to release the fuse holder from the socket.



4 Pull the fuse holder out of the socket.

5 Remove the fuse from the fuse holder.
6 Insert a new fuse in the fuse holder.
7 Reinsert the fuse holder and fix with the screwdriver.
8 Reinsert the power cables.
9 Switch ON the power switch.

7
Parts for Maintenance

Main Assemblies (External Parts)

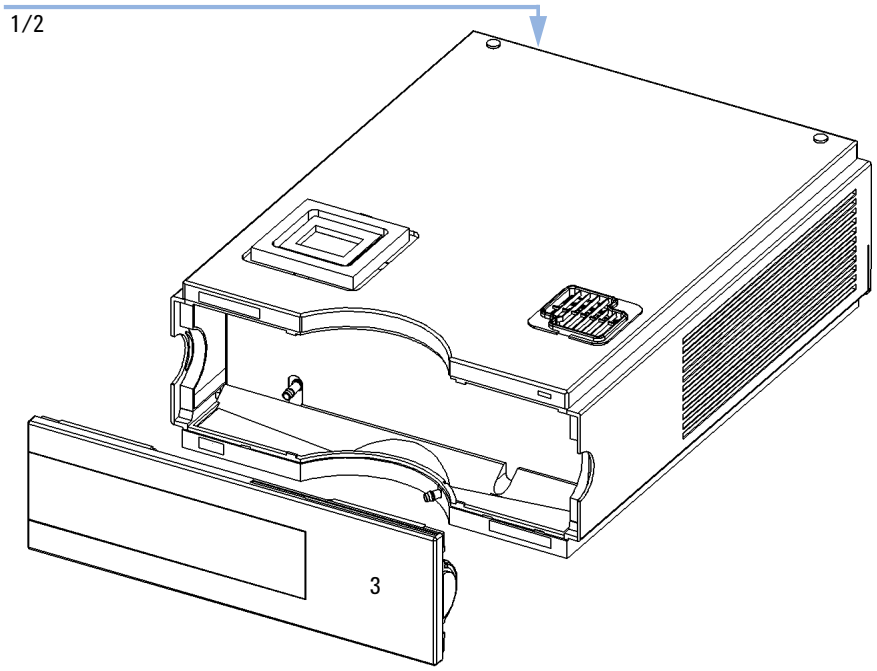


Figure 17 Main Assemblies

Item	p/n	Description
1	2110-0015	Fuses T2.5 A/250V (CSA, UL listed)
2	2110-0029	Fuse TCA - Board (T3 A/250 V; CSA, UL listed)
3	5065-9982	Plastics kit (includes base, top, left and right sides)
	G1330-81600	Cable, autosampler to ALS thermostat

Accessory Kit G1330-68755

p/n	Description
G1330-67300	Waste Tube Assy CA
G1330-81600	Cable, autosampler to ALS thermostat
G1330-90120	hints for use Autosampler Thermostat

HPLC System Tool Kit (G4203-68708)

HPLC System Tool Kit (p/n G4203-68708) contains some accessories and tools needed for installation and repair of the module.

Foam Parts

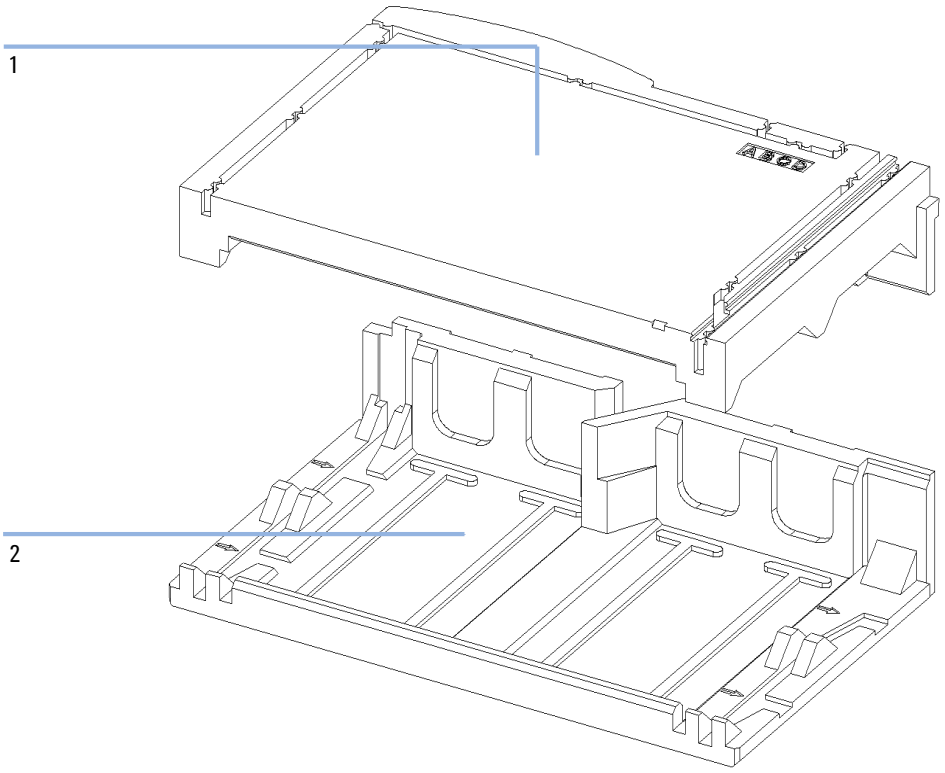


Figure 18 Foam Parts

Table 4 Main Assemblies

Item	Description	Part Number
1	Top Foam	p/n G1330-40102
2	Bottom Foam	p/n G1330-40103

Plastic Parts

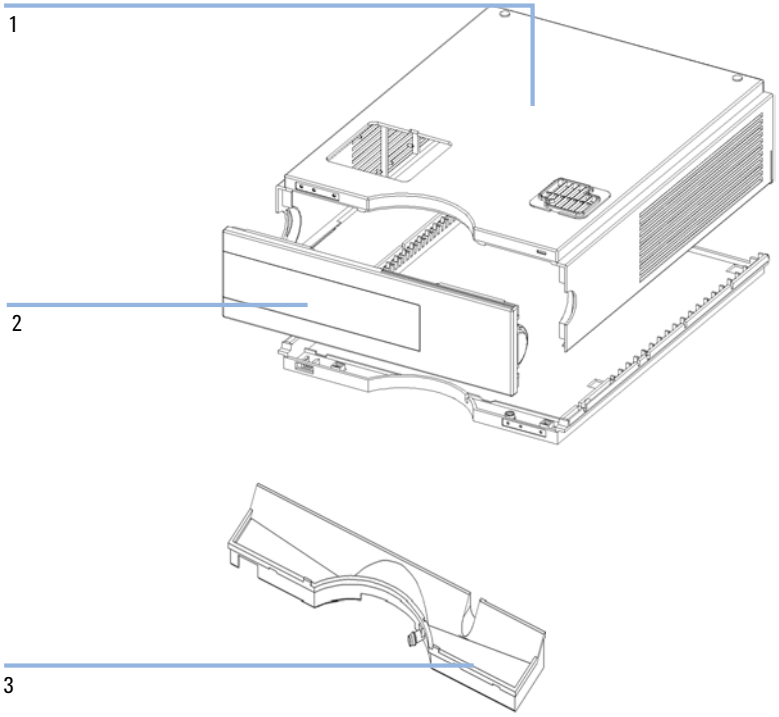


Figure 19 Plastic Parts

Item	p/n	Description
1	G1330-68723	Cover kit (includes base, top, left and right)
2	5067-4691	Frontcover Kit
3	5042-8907	Leak pan

8
Cable Overview

Cable Overview

NOTE Never use cables other than the ones supplied by Agilent Technologies to ensure proper functionality and compliance with safety or EMC regulations.

Analog cables

p/n	Description
35900-60750	Agilent module to 3394/6 integrators
35900-60750	Agilent 35900A A/D converter
01046-60105	Analog cable (BNC to general purpose, spade lugs)

Remote cables

p/n	Description
03394-60600	Agilent module to 3396A Series I integrators
	3396 Series II / 3395A integrator, see details in section "Remote Cables" on page 78
03396-61010	Agilent module to 3396 Series III / 3395B integrators
5061-3378	Agilent module to Agilent 35900 A/D converters (or HP 1050/1046A/1049A)
01046-60201	Agilent module to general purpose

BCD cables

p/n	Description
03396-60560	Agilent module to 3396 integrators
G1351-81600	Agilent module to general purpose

CAN cables

p/n	Description
5181-1516	CAN cable, Agilent module to module, 0.5 m
5181-1519	CAN cable, Agilent module to module, 1 m

LAN cables

p/n	Description
5023-0203	Cross-over network cable, shielded, 3 m (for point to point connection)
5023-0202	Twisted pair network cable, shielded, 7 m (for point to point connection)

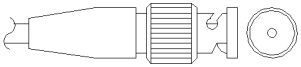
External Contact Cable

p/n	Description
G1103-61611	External contact cable - Agilent module interface board to general purposes

RS-232 cables

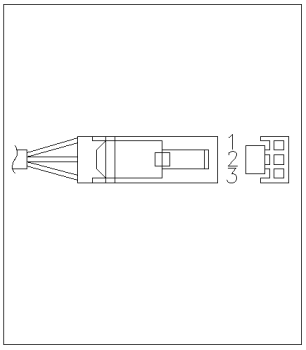
p/n	Description
G1530-60600	RS-232 cable, 2 m
RS232-61600	RS-232 cable, 2.5 m Instrument to PC, 9-to-9 pin (female). This cable has special pin-out, and is not compatible with connecting printers and plotters. It's also called "Null Modem Cable" with full handshaking where the wiring is made between pins 1-1, 2-3, 3-2, 4-6, 5-5, 6-4, 7-8, 8-7, 9-9.
5181-1561	RS-232 cable, 8 m

Analog Cables

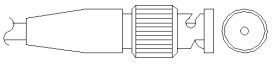


One end of these cables provides a BNC connector to be connected to Agilent modules. The other end depends on the instrument to which connection is being made.

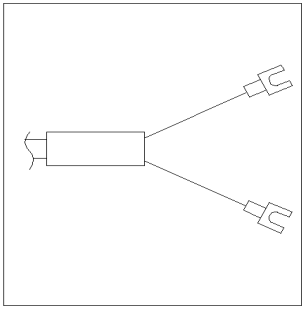
Agilent Module to 3394/6 Integrators

p/n 35900-60750	Pin 3394/6	Pin Agilent module	Signal Name
	1		Not connected
	2	Shield	Analog -
	3	Center	Analog +

Agilent Module to BNC Connector

p/n 8120-1840	Pin BNC	Pin Agilent module	Signal Name
	Shield	Shield	Analog -
	Center	Center	Analog +

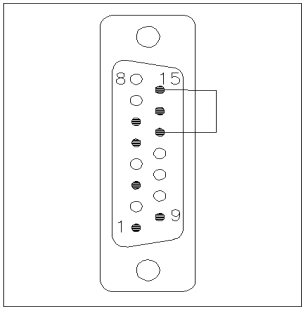
Agilent Module to General Purpose

p/n 01046-60105	Pin 3394/6	Pin Agilent module	Signal Name
	1		Not connected
	2	Black	Analog -
	3	Red	Analog +

Remote Cables

One end of these cables provides a Agilent Technologies APG (Analytical Products Group) remote connector to be connected to Agilent modules. The other end depends on the instrument to be connected to.

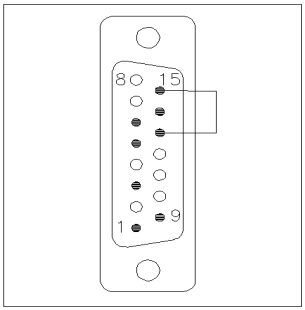
Agilent Module to 3396A Integrators

p/n 03394-60600	Pin 3394	Pin Agilent module	Signal Name	Active (TTL)
	9	1 - White	Digital ground	
	NC	2 - Brown	Prepare run	Low
	3	3 - Gray	Start	Low
	NC	4 - Blue	Shut down	Low
	NC	5 - Pink	Not connected	
	NC	6 - Yellow	Power on	High
	5,14	7 - Red	Ready	High
	1	8 - Green	Stop	Low
	NC	9 - Black	Start request	Low
	13, 15		Not connected	

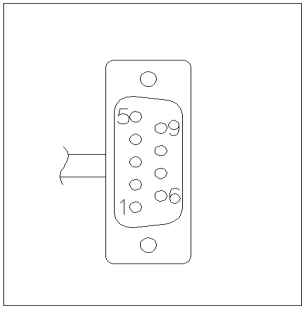
Agilent Module to 3396 Series II / 3395A Integrators

Use the cable Agilent module to 3396A Series I integrators (p/n 03394-60600) and cut pin #5 on the integrator side. Otherwise the integrator prints START; not ready.

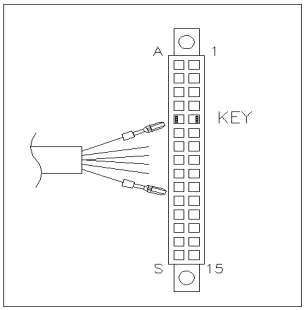
Agilent Module to 3396 Series III / 3395B Integrators

p/n 03396-61010	Pin 33XX	Pin Agilent module	Signal Name	Active (TTL)
	9	1 - White	Digital ground	
	NC	2 - Brown	Prepare run	Low
	3	3 - Gray	Start	Low
	NC	4 - Blue	Shut down	Low
	NC	5 - Pink	Not connected	
	NC	6 - Yellow	Power on	High
	14	7 - Red	Ready	High
	4	8 - Green	Stop	Low
	NC	9 - Black	Start request	Low
	13, 15		Not connected	

Agilent Module to Agilent 35900 A/D Converters

p/n 5061-3378	Pin 35900 A/D	Pin Agilent module	Signal Name	Active (TTL)
	1 - White	1 - White	Digital ground	
	2 - Brown	2 - Brown	Prepare run	Low
	3 - Gray	3 - Gray	Start	Low
	4 - Blue	4 - Blue	Shut down	Low
	5 - Pink	5 - Pink	Not connected	
	6 - Yellow	6 - Yellow	Power on	High
	7 - Red	7 - Red	Ready	High
	8 - Green	8 - Green	Stop	Low
	9 - Black	9 - Black	Start request	Low

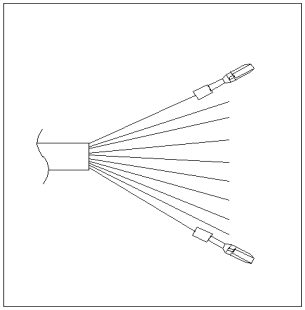
Agilent Module to General Purpose

p/n 01046-60201	Pin Universal	Pin Agilent module	Signal Name	Active (TTL)
		1 - White	Digital ground	
		2 - Brown	Prepare run	Low
		3 - Gray	Start	Low
		4 - Blue	Shut down	Low
		5 - Pink	Not connected	
		6 - Yellow	Power on	High
		7 - Red	Ready	High
		8 - Green	Stop	Low
		9 - Black	Start request	Low

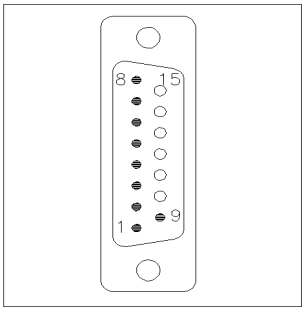
BCD Cables

One end of these cables provides a 15-pin BCD connector to be connected to the Agilent modules. The other end depends on the instrument to be connected to

Agilent Module to General Purpose

p/n G1351-81600	Wire Color	Pin Agilent module	Signal Name	BCD Digit
	Green	1	BCD 5	20
	Violet	2	BCD 7	80
	Blue	3	BCD 6	40
	Yellow	4	BCD 4	10
	Black	5	BCD 0	1
	Orange	6	BCD 3	8
	Red	7	BCD 2	4
	Brown	8	BCD 1	2
	Gray	9	Digital ground	Gray
	Gray/pink	10	BCD 11	800
	Red/blue	11	BCD 10	400
	White/green	12	BCD 9	200
	Brown/green	13	BCD 8	100
	not connected	14		
	not connected	15	+ 5 V	Low

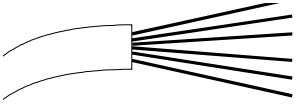
Agilent Module to 3396 Integrators

p/n 03396-60560	Pin 3396	Pin Agilent module	Signal Name	BCD Digit
	1	1	BCD 5	20
	2	2	BCD 7	80
	3	3	BCD 6	40
	4	4	BCD 4	10
	5	5	BCD0	1
	6	6	BCD 3	8
	7	7	BCD 2	4
	8	8	BCD 1	2
	9	9	Digital ground	
	NC	15	+ 5 V	Low

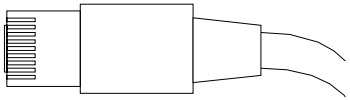
Auxiliary Cable

One end of this cable provides a modular plug to be connected to the Agilent vacuum degasser. The other end is for general purpose.

Agilent Vacuum Degasser to general purposes

p/n G1322-81600	Color	Pin Agilent 1100	Signal Name
	White	1	Ground
	Brown	2	Pressure signal
	Green	3	
	Yellow	4	
	Grey	5	DC + 5 V IN
	Pink	6	Vent

CAN/LAN Cables



Both ends of this cable provide a modular plug to be connected to Agilent modules CAN or LAN connectors.

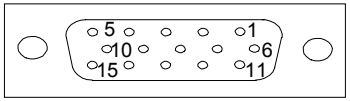
CAN Cables

p/n	Description
5181-1516	CAN cable, Agilent module to module, 0.5 m
5181-1519	CAN cable, Agilent module to module, 1 m

LAN Cables

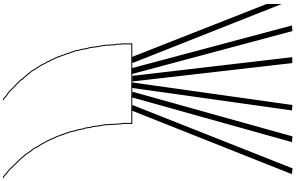
p/n	Description
5023-0203	Cross-over network cable, shielded, 3 m (for point to point connection)
5023-0202	Twisted pair network cable, shielded, 7 m (for point to point connection)

External Contact Cable



One end of this cable provides a 15-pin plug to be connected to Agilent modules interface board. The other end is for general purpose.

Agilent Module Interface Board to general purposes

p/n G1103-61611	Color	Pin Agilent module	Signal Name
	White	1	EXT 1
	Brown	2	EXT 1
	Green	3	EXT 2
	Yellow	4	EXT 2
	Grey	5	EXT 3
	Pink	6	EXT 3
	Blue	7	EXT 4
	Red	8	EXT 4
	Black	9	Not connected
	Violet	10	Not connected
	Grey/pink	11	Not connected
	Red/blue	12	Not connected
	White/green	13	Not connected
	Brown/green	14	Not connected
	White/yellow	15	Not connected

RS-232 Cables

p/n	Description
G1530-60600	RS-232 cable, 2 m
RS232-61600	RS-232 cable, 2.5 m Instrument to PC, 9-to-9 pin (female). This cable has special pin-out, and is not compatible with connecting printers and plotters. It's also called "Null Modem Cable" with full handshaking where the wiring is made between pins 1-1, 2-3, 3-2, 4-6, 5-5, 6-4, 7-8, 8-7, 9-9.
5181-1561	RS-232 cable, 8 m

9 Appendix

Safety Symbols

Table 5 Safety Symbols

Symbol	Description
	The apparatus is marked with this symbol when the user should refer to the instruction manual in order to protect risk of harm to the operator and to protect the apparatus against damage.
	Indicates dangerous voltages.
	Indicates a protected ground terminal.
	Indicates eye damage may result from directly viewing the light produced by the deuterium lamp used in this product.
	The apparatus is marked with this symbol when hot surfaces are available and the user should not touch it when heated up.

WARNING

A WARNING

alerts you to situations that could cause physical injury or death.

➔ 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 loss of data, or damage of equipment.

➔ Do not proceed beyond a caution until you have fully understood and met the indicated conditions.

General 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.

WARNING

Ensure the proper usage of the equipment.

The protection provided by the equipment may be impaired.

➔ The operator of this instrument is advised to use the equipment in a manner as specified in this manual.

Safety Standards

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 fuse holders 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 whenever possible. When inevitable, this has to 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 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.

When working with solvents please observe appropriate safety procedures (e.g. goggles, safety gloves and protective clothing) as described in the material handling and safety data sheet by the solvent vendor, especially when toxic or hazardous solvents are used.

The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC)

Abstract

The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC), adopted by EU Commission on 13 February 2003, is introducing producer responsibility on all electric and electronic appliances starting with 13 August 2005.

NOTE

This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category:

With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a Monitoring and Control Instrumentation product.

NOTE

Do not dispose off in domestic household waste

To return unwanted products, contact your local Agilent office, or see www.agilent.com for more information.

Radio Interference

Cables supplied by Agilent Technologies are screened to provide optimized protection against radio interference. All cables are in compliance with safety or EMC regulations.

Test and Measurement

If test and measurement equipment is operated with unscreened cables, 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 Lp < 70 dB (A)
- At Operator Position
- Normal Operation
- According to ISO 7779:1988/EN 27779/1991 (Type Test)

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http://www.agilent.com

Select Products/Chemical Analysis

It will provide also the latest firmware of the modules for download.

Index

W

www.agilent.com

In This Book

This manual contains information about the Agilent 1290 Infinity Thermostat. This manual describes the following:

- introduction,
- site requirements and specifications,
- installing the thermostatted autosampler,
- optimizing performance,
- troubleshooting and diagnostics,
- maintenance,
- parts and materials for maintenance,
- cable identification,
- configuring the thermostatted autosampler,
- appendix.

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