

9 Maintenance and Repair

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This chapter provides general information on maintenance and repair of the detector.



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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.

Warnings and Cautions

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 volume of substances should be reduced to the minimum required for the analysis.
 - Do not operate the instrument in an explosive atmosphere.
-

WARNING

Eye damage by detector light



Eye damage may result from directly viewing the UV-light produced by the lamp of the optical system used in this product.

- Always turn the lamp of the optical system off before removing it.
-

WARNING

Electrical shock

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

- Do not remove the cover of the module.
 - Only certified persons are authorized to carry out repairs inside the module.
-

WARNING

Personal injury or damage to the product

Agilent is not responsible for any damages caused, in whole or in part, by improper use of the products, unauthorized alterations, adjustments or modifications to the products, failure to comply with procedures in Agilent product user guides, or use of the products in violation of applicable laws, rules or regulations.

- Use your Agilent products only in the manner described in the Agilent product user guides.
-

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.
-

Overview of Maintenance

The following pages describe maintenance (simple repairs) of the detector that can be carried out without opening the main cover.

Table 16 Simple Repairs

Procedures	Typical Frequency	Notes
Deuterium lamp exchange	If noise and/or drift exceeds your application limits or lamp does not ignite.	A VWD test should be performed after replacement.
Flow cell exchange	If application requires a different flow cell type.	A VWD test should be performed after replacement.
Cleaning flow cell parts cleaning or exchange	If leaking or if intensity drops due to contaminated flow cell windows.	A pressure tightness test should be done after repair.
Leak sensor drying	If leak has occurred.	Check for leaks.
Leak handling system replacement	If broken or corroded.	Check for leaks.

Cleaning the Module

To keep the module case clean, use a soft cloth slightly dampened with water, or a solution of water and mild detergent.

WARNING

Liquid dripping into the electronic compartment of your module can cause shock hazard and damage the module

- Do not use an excessively damp cloth during cleaning.
 - Drain all solvent lines before opening any connections in the flow path.
-

Exchanging a Lamp

When If noise or drift exceeds application limits or lamp does not ignite.

Tools required **Description**
Screwdriver, Pozidriv #1 PT3

Parts required	#	p/n	Description
	1	G1314-60101	Deuterium lamp (with RFID tag)

Preparations Turn the lamp OFF.

NOTE

If you want to use an Agilent DAD lamp instead of the VWD lamp, you have to change the lamp settings in the *VWD Configuration* to the required lamp type. This ensures that the DAD lamp's filament heating is operated like in the DAD.

NOTE

The specification are based on the the standard RFID tag lamp (G1314-60101) and may be not achieved when other lamp types or aged lamps are used.

WARNING

Injury by touching hot lamp
If the detector has been in use, the lamp may be hot.
→ If so, wait for lamp to cool down.

WARNING

Injury by sharp metal edges
→ Be careful when touching the RFI sheet metal at the rear of the fan. There are sharp edges.

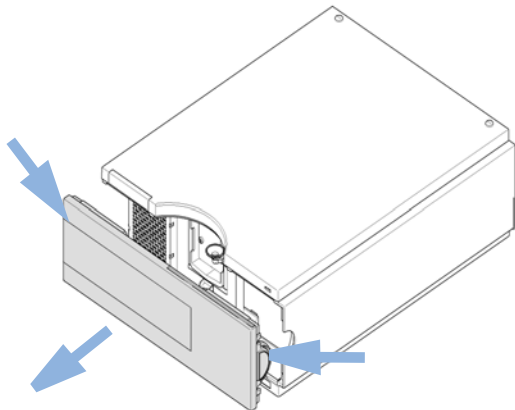
CAUTION

Electronic boards and components are sensitive to electrostatic discharge (ESD).
→ To prevent accidental electrostatic discharge when coming into contact with components inside the instrument, touch one of the metal housing panels at the front of the instrument.

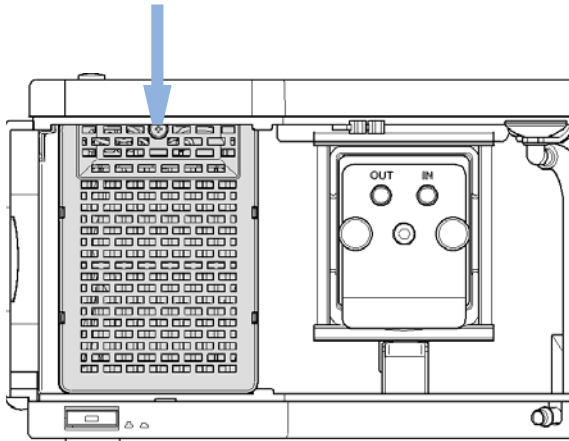
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Exchanging a Lamp

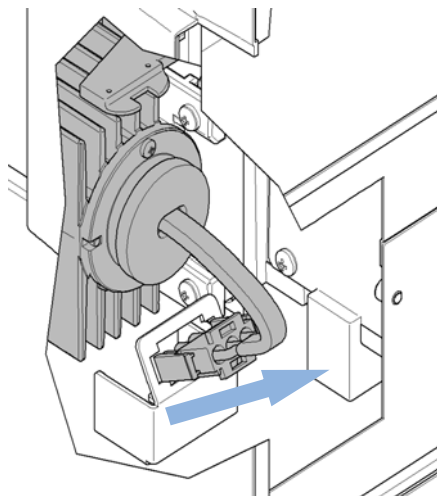
- 1** Press the release buttons and remove the front cover to have access to the front area.



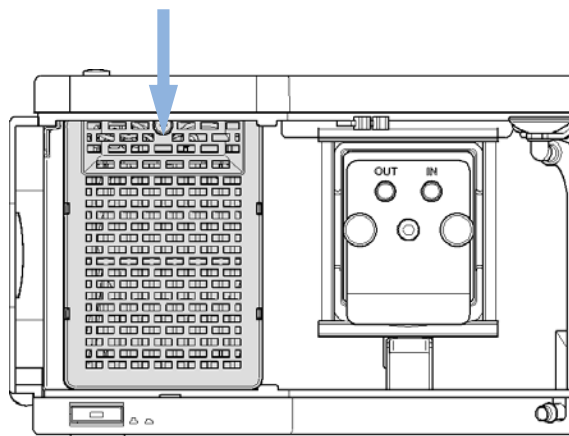
- 2** Unscrew the heater assembly and remove it.



- 3** Unscrew, disconnect and remove the lamp. Insert, fix and reconnect the lamp.



- 4** Replace the heater assembly.



Next Steps:

- 5** Replace the front cover.
- 6** Reset the lamp counter as described in the User Interface documentation (required for non-RFID tag lamps only).
- 7** Turn the lamp ON.
- 8** Give the lamp more than 10 minutes to warm-up.
- 9** Perform [“Wavelength Verification-Calibration”](#) on page 120 to check the correct positioning of the lamp.

NOTE

If the detector was turned off during the replacement, then the detector requires a warm-up time of 60 minutes. No measurements should be performed during this time.

Exchanging a Flow Cell

When If application needs a different type of flow cell or the flow cell needs repair.

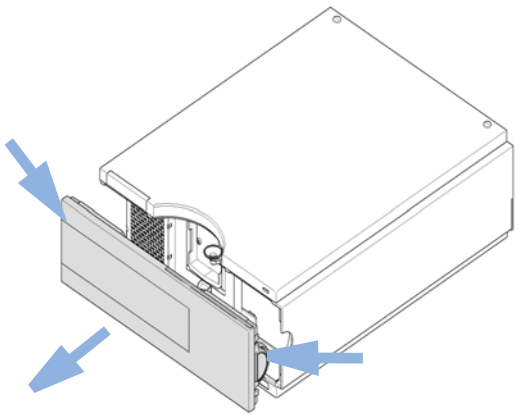
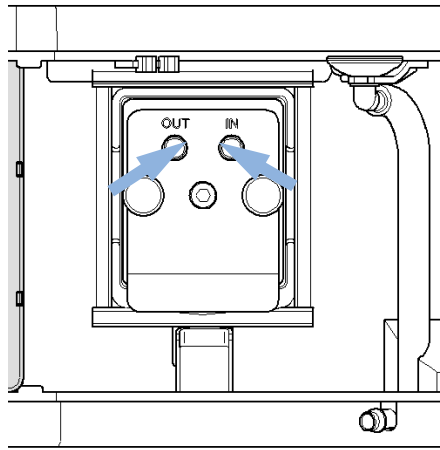
Tools required **Description**
Wrench, 1/4 inch
for capillary connections

Parts required **#** **Description**
1 Flow cell

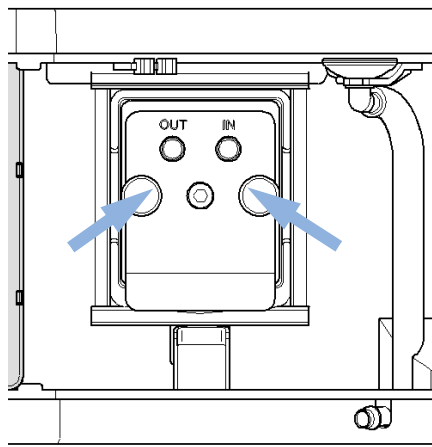
For flow cell details see

- “Standard Flow Cell 10 mm / 14 μ L” on page 152
- “Micro Flow Cell 3 mm / 2 μ L” on page 154
- “Semi-micro Flow Cell 6 mm / 5 μ L” on page 156
- “High Pressure Flow Cell 10 mm / 14 μ L” on page 158

Preparations Turn the lamp OFF.

<p>1 Press the release buttons and remove the front cover to have access to the flow cell area.</p> 	<p>2 Disconnect the inlet and outlet capillaries.</p> 
--	---

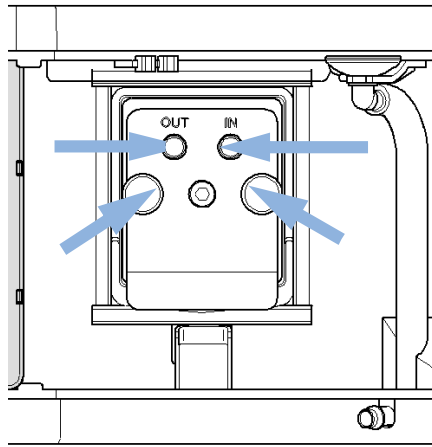
- 3** Unscrew both thumb screws parallel and remove the flow cell.



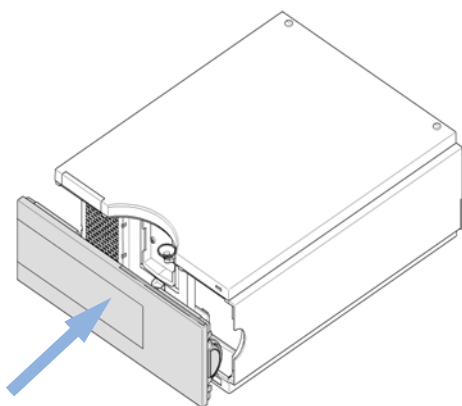
NOTE

If you want to maintain flow cell parts, see [“Overview of Maintenance Parts”](#) on page 150 or the information provided with your flow cell.

- 4** Replace the flow cell and fix the thumb screws. Reconnect the inlet and outlet capillaries to the flow cell.



- 5** Replace the front cover.



Next Steps:

- 6** To check for leaks, establish a flow and observe the flow cell (outside of the cell compartment) and all capillary connections.
- 7** Insert the flow cell.
- 8** Perform [“Wavelength Verification-Calibration”](#) on page 120 to check the correct positioning of the flow cell.
- 9** Replace the front cover.

Repairing the Flow Cells

Parts required	#	Description
	1	Flow cell

For details on flow cells see

- “Standard Flow Cell 10 mm / 14 μ L” on page 152
- “Micro Flow Cell 3 mm / 2 μ L” on page 154
- “Semi-micro Flow Cell 6 mm / 5 μ L” on page 156
- “High Pressure Flow Cell 10 mm / 14 μ L” on page 158

NOTE

The shown cell parts will differ depending upon the flow cell type. For detailed parts schematics, refer to above mentioned pages.

- 1 - Cell screw
- 2 - Conical springs
- 3 - Ring #1 PEEK
- 4 - Gasket #1 (small hole)
- 5 - Window Quartz
- 6 - Gasket #2 (large hole)
- 7 - Ring #2 PEEK
- 8 - RFID tag

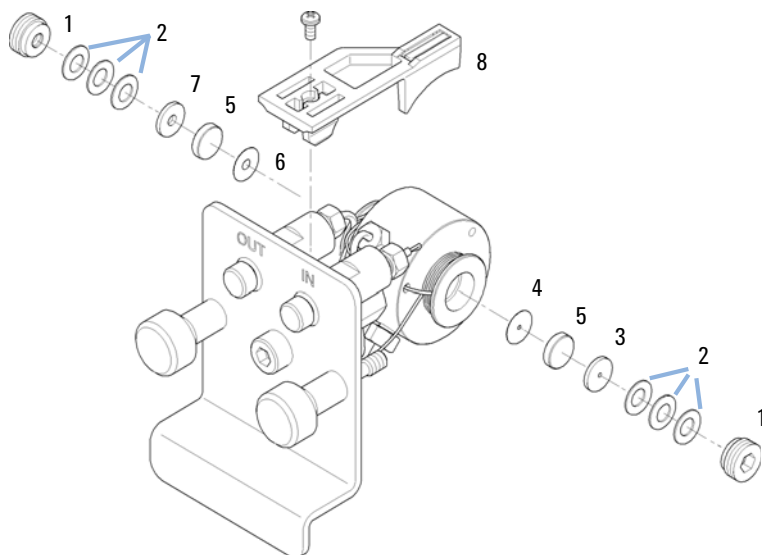


Figure 46 Standard Flow Cell

1 Disassembling the Flow Cell.

- a** Unscrew the cell screw using a 4-mm hexagonal wrench.
- b** Remove the SST rings using a pair of tweezers.

CAUTION

Scratched window surfaces by tweezers

Window surfaces can easily be scratched by using tweezers for removing the windows.

→ Do not use tweezers to remove windows

- c** Use adhesive tape to remove the peek ring, the window and the gasket.
- d** Repeat step a through step c for the other window (keep the parts separate - otherwise they could be mixed!).

2 Cleaning the Flow Cell Parts

- a Pour isopropanol into the cell hole and wipe clean with a piece of lint-free cloth.
- b Clean the windows with ethanol or methanol. Dry it with a piece of lint-free cloth.

NOTE

Always use new gaskets.

3 Reassembling the Flow Cell

- a Hold the flow cell cassette horizontally and place gasket in position. Ensure both cell holes can be seen through the holes of gasket.

NOTE

The semi-micro #1 and #2 gaskets (items 6 and 7, “[Semi-micro Flow Cell 6 mm / 5 µL](#)” on page 156) look very similar. Do not mix them up.

- b Place the window on gasket.
- c Place the peek ring on the window.
- d Insert the conical springs. Make sure the conical springs point towards the window. Otherwise tightening the cell screw might break the window.

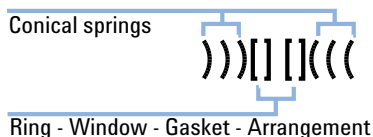


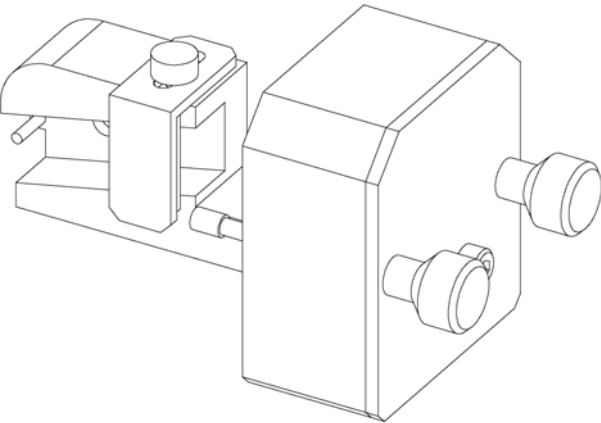
Figure 47 Orientation of conical springs

- e Screw the cell screw into the flow cell and tighten the screw.
- 4 Repeat the procedure for the other cell side.
 - 5 Reconnect the capillaries.
 - 6 Perform a leak test. If OK, insert the flow cell.
 - 7 Perform “[Wavelength Verification-Calibration](#)” on page 120 to check the correct positioning of the flow cell.
 - 8 Replace the front cover.

Using the Cuvette Holder

This cuvette holder can be placed instead of a flow cell in the variable wavelength detector. Standard cuvettes with standards in it, for example, National Institute of Standards & Technology (NIST) holmium oxide solution standard, can be fixed in it.

This can be used for wavelength verifications.



When If your own standard should be used to checkout the instrument.

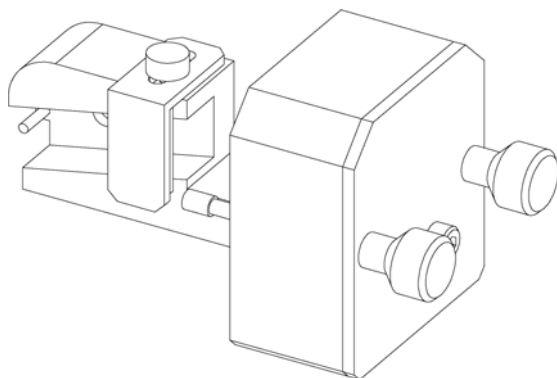
Parts required	#	p/n	Description
	1	G1314-60200	Cuvette Holder
	1		Cuvette with the “standard”, e.g. NIST certified holmium oxide sample

- Preparations**
- Remove the normal flow cell.
 - Have cuvette with standard available.

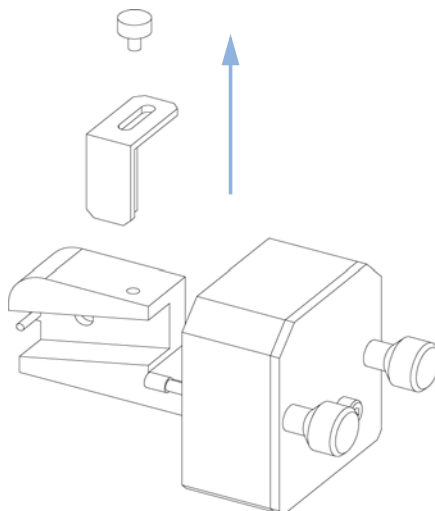
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Using the Cuvette Holder

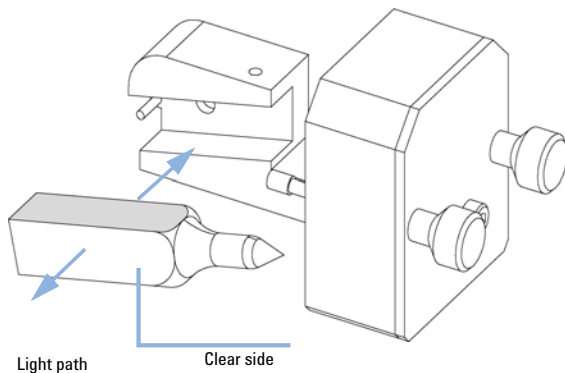
- 1** Locate the cuvette holder on the desk.



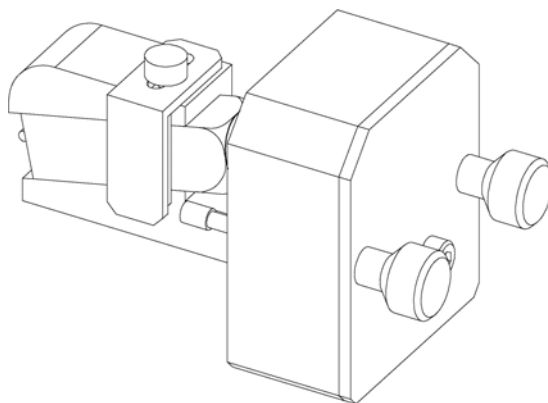
- 2** Unscrew the bracket.



- 3** Insert the cuvette with the sample into the holder. The clear side of the cuvette must be visible.



- 4** Replace the bracket and fix the cuvette.



Next Steps:

- 5** Install the cuvette holder in the instrument.
- 6** Perform your Wavelength Verification/Calibration [“Wavelength Verification-Calibration”](#) on page 120 to check the correct position of the cuvette holder.

Correcting Leaks

When If a leakage has occurred in the flow cell area or at the capillary connections.

Tools required

Description

Tissue

Wrench, 1/4 inch
for capillary connections

- 1 Remove the front cover.
- 2 Use tissue to dry the leak sensor area.
- 3 Observe the capillary connections and the flow cell area for leaks and correct, if required.
- 4 Replace the front cover.

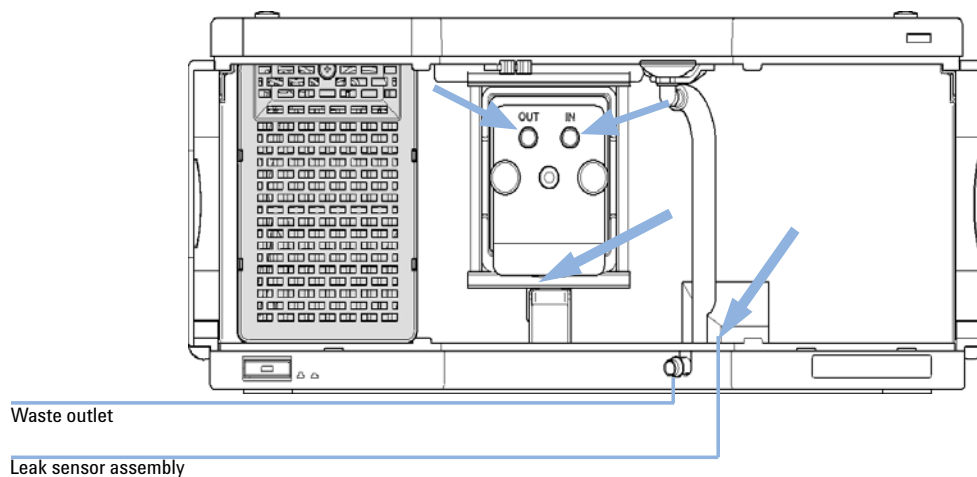


Figure 48 Drying the Leak Sensor

Replacing Leak Handling System Parts

When If the parts are corroded or broken.

Tools required None

Parts required	#	p/n	Description
	1	5041-8389	Leak funnel holder
	1	5041-8388	Leak funnel
	1	5062-2463	Corrugated tubing, PP, 6.5 mm id, 5 m

- 1 Remove the front cover to have access to the leak handling system.
- 2 Pull the leak funnel out of the leak funnel holder.
- 3 Pull the leak funnel with the tubing out of its location.
- 4 Replace the leak funnel and/or the tubing.
- 5 Insert the leak funnel with the tubing in its position.
- 6 Insert the leak funnel into the leak funnel holder.
- 7 Replace the front cover.

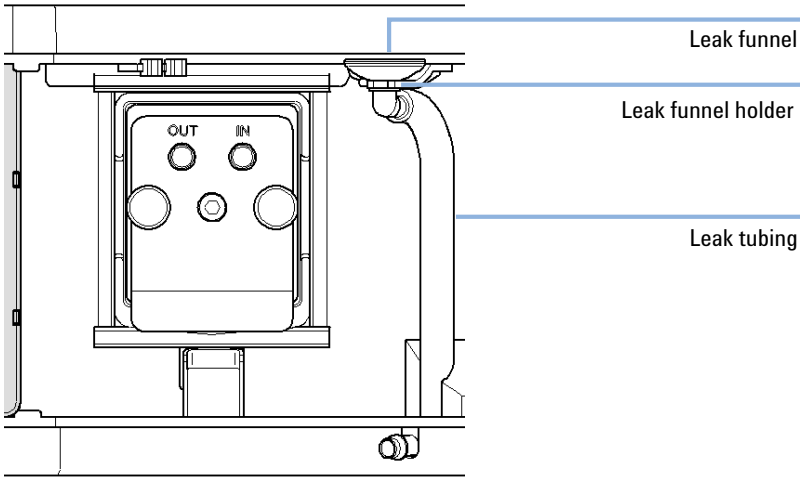


Figure 49 Replacing Waste Handling System Parts

Replacing the Module's Firmware

When

- The installation of newer firmware might be necessary
- if a newer version solves problems of older versions or
 - to keep all systems on the same (validated) revision.
- The installation of older firmware might be necessary
- to keep all systems on the same (validated) revision or
 - if a new module with newer firmware is added to a system or
 - if third party control software requires a special version.

Tools required

Description

- LAN/RS-232 Firmware Update Tool
- OR
- Agilent Lab Advisor software
- OR
- Instant Pilot G4208A
(only if supported by module)

Parts required

- | # | Description |
|---|---|
| 1 | Firmware, tools and documentation from Agilent web site |

Preparations

Read update documentation provided with the Firmware Update Tool.

To upgrade/downgrade the module's firmware carry out the following steps:

- 1 Download the required module firmware, the latest LAN/RS-232 FW Update Tool and the documentation from the Agilent web.
• http://www.chem.agilent.com/_layouts/agilent/downloadFirmware.aspx?whid=69761
- 2 For loading the firmware into the module follow the instructions in the documentation.

Module Specific Information

Table 17 Module Specific Information

	G1314D	G1314E	G1314F
Initial firmware	B.06.20	B.06.20	B.06.30
Compatibility with 1100 / 1200 series modules	When using the G1314D in a system, all other modules must have firmware revision A.06.10 or B.06.10 or above (main and resident). Otherwise the communication will not work.	When using the G1314E in a system, all other modules must have firmware revision A.06.10 or B.06.10 or above (main and resident). Otherwise the communication will not work.	When using the G1314F in a system, all other modules must have firmware revision A.06.30 or B.06.30 or above (main and resident). Otherwise the communication will not work.
Conversion to / emulation of G1314B or G1314C	Not possible due to different hardware and electronic platform		



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Parts and Materials for Maintenance

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This chapter provides information on parts for maintenance.



Overview of Maintenance Parts

p/n	Description
5181-1516	CAN cable, Agilent module to module, 0.5 m
5181-1519	CAN cable, Agilent module to module, 1 m
G1314-60101	Deuterium lamp (with RFID tag)
G1314-60186	Standard flow cell 10 mm, 14 μ L, 40 bar (with RFID tag)
G1314-60187	Micro flow cell 3 mm, 2 μ L, 120 bar (with RFID tag)
G1314-60183	Semi-micro flow cell 6 mm, 5 μ L (with RFID tag)
G1314-60182	High pressure flow cell 10 mm, 14 μ L, 400 bar (with RFID tag)
G1314-60200	Cuvette Holder
5067-4691	Front Panel DAD/VWD/FLD (1260/1290)
5065-9982	Front Panel DAD/VWD/FLD (1200)

For details on flow cells, refer to

- [“Standard Flow Cell 10 mm / 14 \$\mu\$ L”](#) on page 152,
- [“Micro Flow Cell 3 mm / 2 \$\mu\$ L”](#) on page 154,
- [“Semi-micro Flow Cell 6 mm / 5 \$\mu\$ L”](#) on page 156 and
- [“High Pressure Flow Cell 10 mm / 14 \$\mu\$ L”](#) on page 158.

Kits

HPLC System Tool Kit

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

Accessory Kit

Accessory kit (G1314-68755) contains some accessories and tools needed for installation and repair of the module.

p/n	Description
0100-1516	Fitting male PEEK, 2/pk
5062-8535	Waste accessory kit, PEEK capillary 0.25 mm i.d., 1/16 o.d., 500 mm long plus 2 MT PTFE tubing i.d. 0.8 mm, 1/16 o.d.
5063-6527	Tubing assembly, i.d. 6 mm, o.d. 9 mm, 1.2 m (to waste)
5181-1516	CAN cable, Agilent module to module, 0.5 m

Standard Flow Cell 10 mm / 14 µL

Item	p/n	Description
	G1314-60186	Standard flow cell 10 mm, 14 µL, 40 bar (with RFID tag)
	5062-8522	Capillary column - detector PEEK 600 mm lg, 0.17 mm i.d., 1/16 inch o.d.
	G1314-65061	Cell Repair Kit, includes 2x Gasket #1, 2x Gasket #2, 2x Window Quartz
1	G1314-65062	Cell screw kit
2	79853-29100	Conical spring kit, 10/pk
3	G1314-65066	Ring #2 kit (IN small hole, i.d. 1 mm) PEEK, 2/pk
4	G1314-65064	Gaskets #2 IN (small hole i.d. 1 mm), KAPTON 10/pk
5	79853-68742	Window quartz kit, 2/pk
6	G1314-65063	Gasket #1 kit (OUT large hole, i.d. 2.4 mm) KAPTON, 2/pk
7	G1314-65065	Ring #1 kit (OUT large hole, i.d. 2.4 mm) PEEK, 2/pk
8	G1314-44010	Clip for RFI ID tag
9	0515-4780	Screw for Clip, M2.2, 4.5 mm long

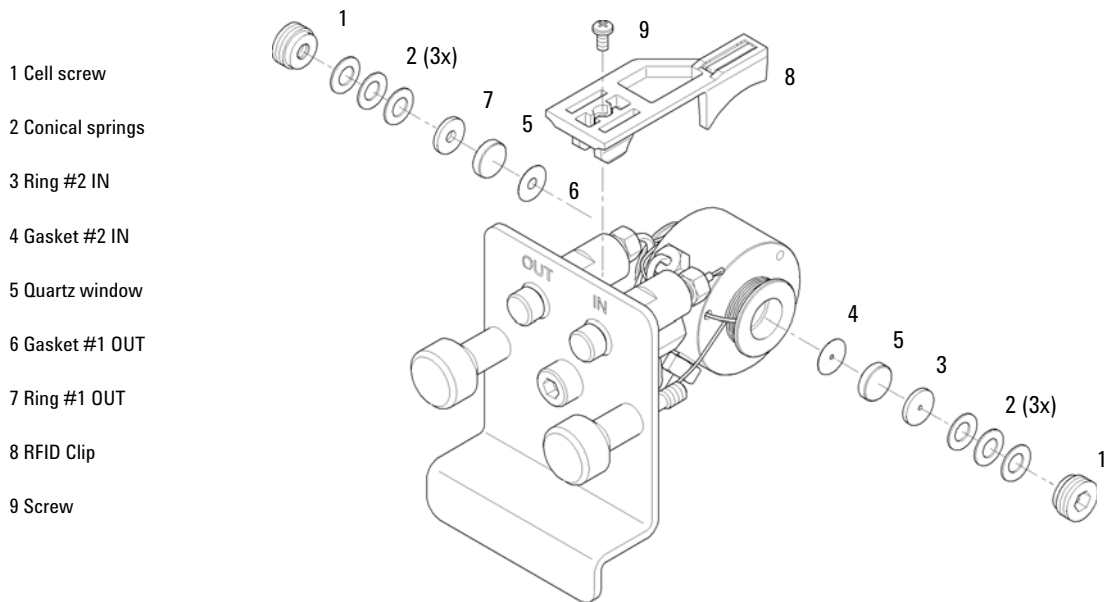


Figure 50 Standard Flow Cell

10 Parts and Materials for Maintenance

Micro Flow Cell 3 mm / 2 µL

Micro Flow Cell 3 mm / 2 µL

Item	p/n	Description
	G1314-60187	Micro flow cell 3 mm, 2 µL, 120 bar (with RFID tag)
	5021-1823	Capillary column – detector SST 400 mm lg, 0.12 mm i.d.
1	79883-22402	Window screw
2	5062-8553	Washer kit (10/pk)
3	79883-28801	Compression washer
4	79883-22301	Window holder
5	1000-0488	Quartz window
6	G1315-68710	Gasket FRONT (PTFE), 1.3 mm hole, inlet side (12/pk)
7	79883-68702	Gasket BACK (PTFE), 1.8 mm hole, outlet side (12/pk)
8	G1314-44010	Clip for RFI ID tag
9	0515-4780	Screw for Clip, M2.2, 4.5 mm long
	G1314-87301	Capillary IN (0.12 mm, 310 mm lg)
	G1314-87302	Capillary OUT (0.17 mm, 120 mm lg)
	G1315-68713	Cell repair kit semi-micro, includes window screw kit, Gasket Kit BACK, Gasket Kit FRONT and 4 mm hexagonal wrench
	79883-68703	Window screw kit, includes 2 quartz windows, 2 compression washers, 2 window holders, 2 window screws and 10 washers

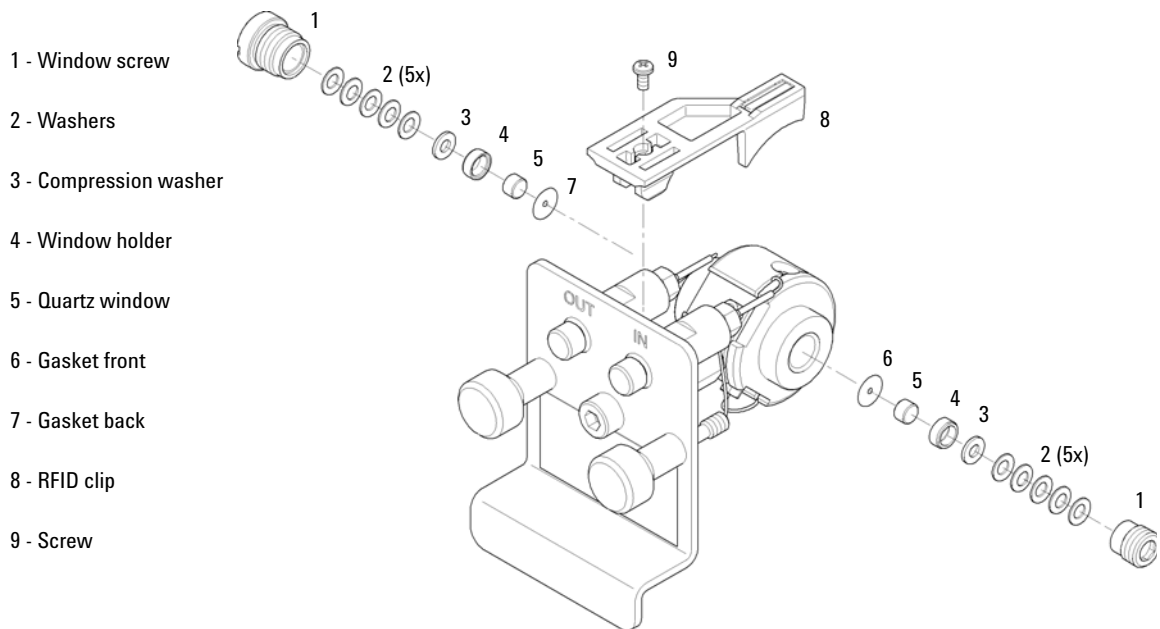


Figure 51 Micro Flow Cell

Semi-micro Flow Cell 6 mm / 5 µL

NOTE

The semi-micro #1 and #2 gaskets (items 6 and 7) look very similar. Do not mix them up.

Item	p/n	Description
1	G1314-60183	Semi-micro flow cell 6 mm, 5 µL (with RFID tag)
	5021-1823	Capillary column – detector SST 400 mm lg, 0.12 mm i.d.
	G1314-20047	Cell screw
	G1314-65056	Semi-micro cell kit, includes two quartz windows, one gasket #1, one #2 and two PTFE gaskets.
2	79853-29100	Conical spring kit, 10/pk
3	79853-22500	Ring SST, 2/pk
4	79853-68743	PTFE gasket (round hole i.d. 2.5 mm, o.d. 8 mm), (10/pk)
5	79853-68742	Window quartz kit, 2/pk
6		Semi-micro #1 gasket (long hole 1.5 x 3.5 mm), PTFE
7		Semi-micro #2 gasket (long hole 2 x 4 mm), PTFE
8	G1314-44010	Clip for RFI ID tag
9	0515-4780	Screw for Clip, M2.2, 4.5 mm long

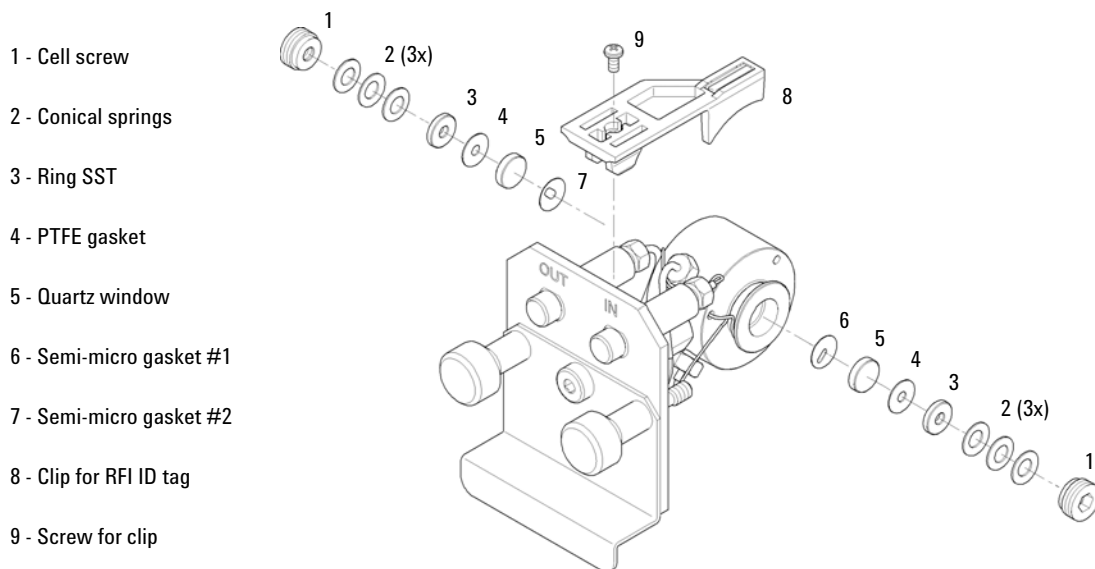


Figure 52 Semi-micro Flow Cell

High Pressure Flow Cell 10 mm / 14 µL

Item	p/n	Description
1	G1314-60182	High pressure flow cell 10 mm, 14 µL, 400 bar (with RFID tag)
	G1315-87311	Capillary ST 0.17 mm x 380 mm S/S
	G1314-20047	Cell screw
	G1314-65054	Cell kit Agilent, comprises: two windows, two KAPTON gaskets and two PEEK rings
2		Ring PEEK kit
3		Window quartz kit
4		Gasket kit, KAPTON
5	G1314-44010	Clip for RFI ID tag
6	0515-4780	Screw for Clip, M2.2, 4.5 mm long

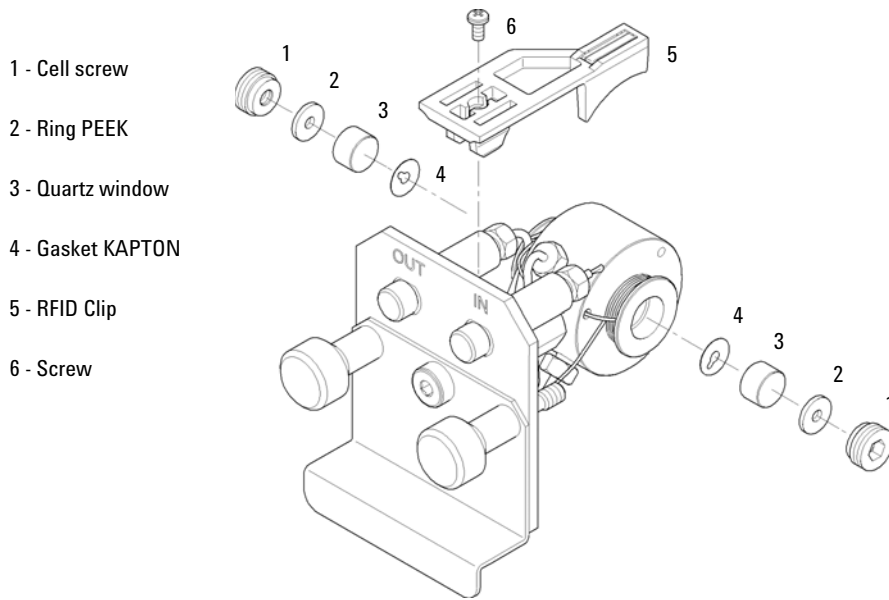


Figure 53 High Pressure Flow Cell

Cuvette Holder

For information the use of the cuvette holder, refer to [“Using the Cuvette Holder”](#) on page 143.

p/n	Description
G1314-60200	Cuvette Holder

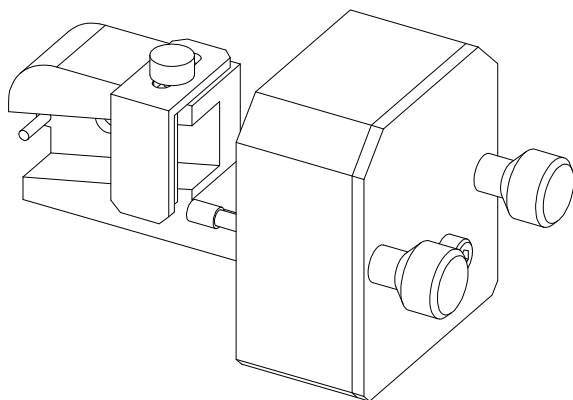


Figure 54 Cuvette Holder

Leak Parts

Item	p/n	Description
3	5041-8388	Leak funnel
4	5041-8389	Leak funnel holder
5	5041-8387	Tube clip
6	5062-2463	Corrugated tubing, PP, 6.5 mm id, 5 m
7	5062-2463	Corrugated tubing, PP, 6.5 mm id, 5 m

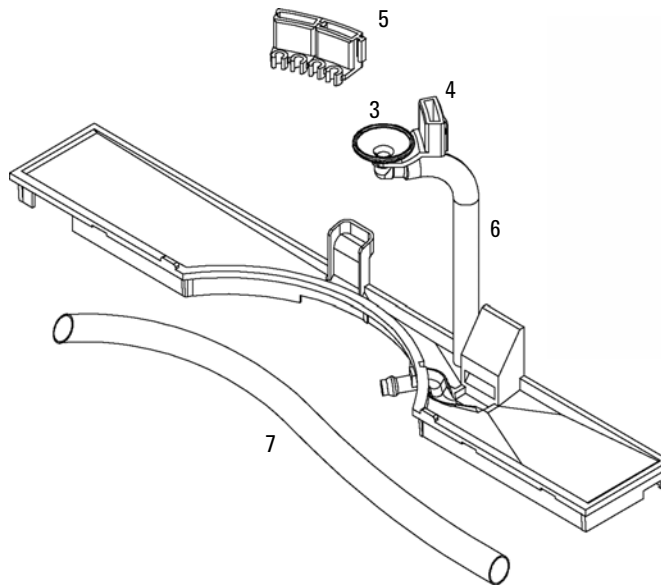


Figure 55 Leak Parts

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Leak Parts



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This chapter provides information on cables used with the Agilent 1200 Infinity Series modules.



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 168
03396-61010	Agilent module to 3396 Series III / 3395B integrators
5061-3378	Remote Cable
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

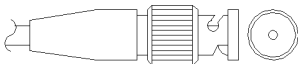
LAN cables

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)

RS-232 cables

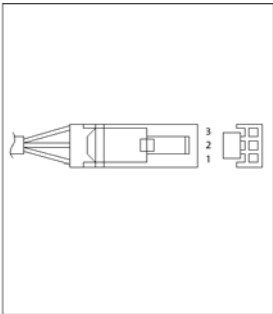
p/n	Description
G1530-60600	RS-232 cable, 2 m
RS232-61601	RS-232 cable, 2.5 m Instrument to PC, 9-to-9 pin (female). This cable has special pin-out, and is not compatible with connecting printers and plotters. It's also called "Null Modem Cable" with full handshaking where the wiring is made between 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

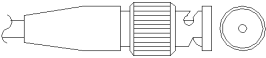


One end of these cables provides a BNC connector to be connected to Agilent modules. The other end depends on the instrument to which connection is being made.

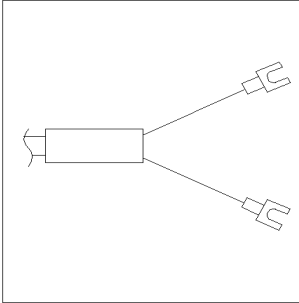
Agilent Module to 3394/6 Integrators

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

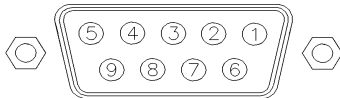
Agilent Module to BNC Connector

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

Agilent Module to General Purpose

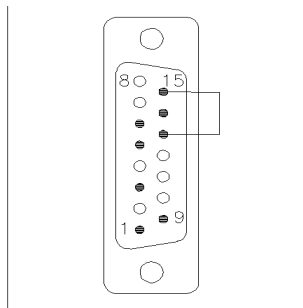
p/n 01046-60105	Pin	Pin Agilent module	Signal Name
	1		Not connected
	2	Black	Analog -
	3	Red	Analog +

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.

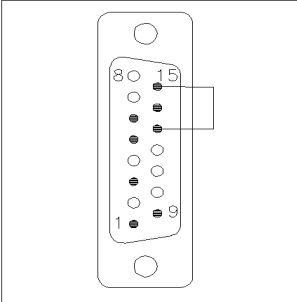
Agilent Module to 3396A Integrators

p/n 03394-60600	Pin 3396A	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	

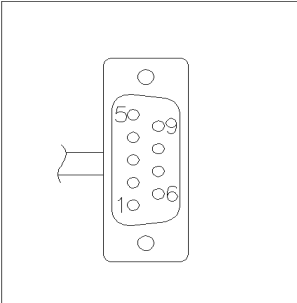
Agilent Module to 3396 Series II / 3395A Integrators

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

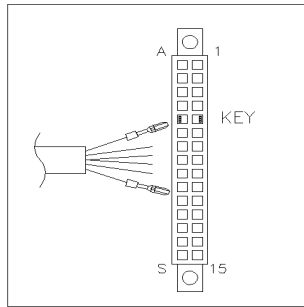
Agilent Module to 3396 Series III / 3395B Integrators

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

BCD Cables

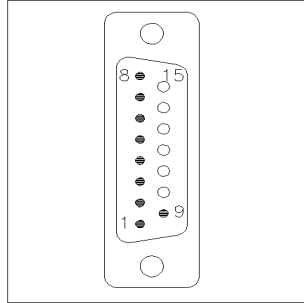


One end of these cables provides a 15-pin BCD connector to be connected to the Agilent modules. The other end depends on the instrument to be connected to

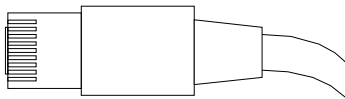
Agilent Module to General Purpose

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

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)

RS-232 Cables

p/n	Description
G1530-60600	RS-232 cable, 2 m
RS232-61601	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

