Agilent G2807A Replacement Chromatographic Module

Installation Guide

Agilent Technologies

Notices

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Safety Notices

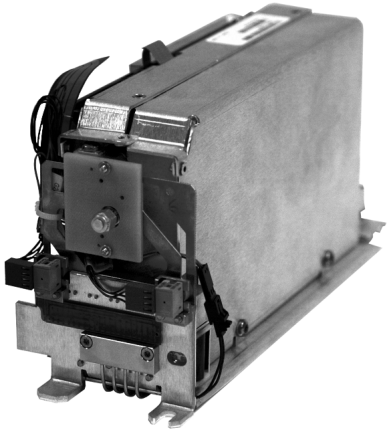
CAUTION

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.

Installation Guide



This document describes how to replace an Agilent Technologies, Inc. 3000 Micro GC chromatographic module (GC module) with a Replacement Chromatographic Module, Agilent G2807A.

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Before Starting

What is in this kit?

Table 1 below lists the contents of the G2807A kit.

Table 1 Kit contents

Item	Comments	Qty.
GC module	New O-rings are pre-installed	1
Disposable electrostatic discharge (ESD) wrist strap		1
CD-ROM	Contains the latest firmware updates for your instrument	1
Firmware update instructions	Describes how to update your instrument's firmware using the CD-ROM	1

About your replacement GC module

Verify that the received GC module is correct. Check the part number on the label found on top of the old GC module against the kit part number you received using Table 2. Figure 1 shows the label's position.

Table 2 Original GC module and replacement kit part numbers

Column option	Injector type	Part no. on top of original GC module	Replacement kit part no.	
			New	Exchange
OV-1, 4 m × 0.15 mm × 1.2 µm	Fixed	G2801-60507	G2801-61002	G2801-69002
OV-1, 8 m × 0.15 mm × 1.2 µm	Fixed	G2801-60508	G2801-61003	G2801-69003
OV-1, 6 m × 0.15 mm × 2.0 µm	Fixed	G2801-60509	G2801-61004	G2801-69004
OV-1, 8 m × 0.15 mm × 2.0 µm	Fixed	G2801-60850	G2801-61000	G2801-69000

Table 2 Original GC module and replacement kit part numbers (continued)

Column option	Injector type	Part no. on top of original GC module	Replacement kit part no.	
			New	Exchange
OV-1701, 8 m × 0.1 mm × 0.5 µm	Fixed	G2801-60860	G2801-61010	G2801-69010
MolSieve 5A PLOT, 10 m × 0.32 mm	Fixed	G2801-60510	G2801-61005	G2801-69005
Alumina PLOT, 10 m × 0.32 mm	Fixed	G2801-60511	G2801-61006	G2801-69006
PLOT Q, 8 m × 0.32 mm	Fixed	G2801-60512	G2801-61007	G2801-69007
PLOT U, 4 m × 0.32 mm	Fixed	G2801-60513	G2801-61008	G2801-69008
PLOT U, 6 m × 0.32 mm	Fixed	G2801-60514	G2801-61009	G2801-69009
PLOT U, 8 m × 0.32 mm	Fixed	G2801-60506	G2801-61001	G2801-69001
Stabilwax DB, 10 m × 0.5 µm	Fixed	G2801-60516	G2801-61011	G2801-69011
OV-1, 4 m × 0.15 mm × 1.2 µm	Variable	G2801-60537	G2801-61014	G2801-69014
OV-1, 8 m × 0.15 mm × 1.2 µm	Variable	G2801-60538	G2801-61015	G2801-69015
OV-1, 6 m × 0.15 mm × 2.0 µm	Variable	G2801-60539	G2801-61016	G2801-69016
OV-1, 8 m × 0.15 mm × 2.0 µm	Variable	G2801-60535	G2801-61012	G2801-69012
OV-1701, 8 m × 0.1 mm × 0.5 µm	Variable	G2801-60545	G2801-61022	G2801-69022
MolSieve 5A PLOT, 10 m × 0.32 mm	Variable	G2801-60540	G2801-61017	G2801-69017
Alumina PLOT, 10 m × 0.32 mm	Variable	G2801-60541	G2801-61018	G2801-69018
PLOT Q, 8 m × 0.32 mm	Variable	G2801-60542	G2801-61019	G2801-69019
PLOT U, 4 m × 0.32 mm	Variable	G2801-60543	G2801-61020	G2801-69020
PLOT U, 6 m × 0.32 mm	Variable	G2801-60544	G2801-61021	G2801-69021
PLOT U, 8 m × 0.32 mm	Variable	G2801-60536	G2801-61013	G2801-69013
Stabilwax DB, 10 m × 0.5 µm	Variable	G2801-60546	G2801-61023	G2801-69023
OV-1, 10 m × 0.15 mm × 2.0 µm *	Fixed *	G2801-61107	G2801-61042	G2801-69042
OV-1, 14 m × 0.15 mm × 2.0 µm *	Fixed *	G2801-61114	G2801-61061	G2801-69061
OV-1, 14 m × 0.15 mm × 2.0 µm	Variable	G2801-61115	G2801-61062	G2801-69062

Table 2 Original GC module and replacement kit part numbers (continued)

Column option	Injector type	Part no. on top of original GC module	Replacement kit part no.	
			New	Exchange
OV-1, 10 m × 0.15 mm × 2.0 µm Stabilwax DB 1.2 m × 0.25 mm × 0.5 µm	1.0 µL Backflush	G2801-61108	G2801-61043	G2801-69043
Alumina PLOT, 14 m, × 0.25 mm Alumina PLOT, 1 m × 0.25 mm	0.4 µL Backflush	G2801-61109	G2801-61044	G2801-69044
Alumina PLOT, 14 m × 0.32 mm Alumina PLOT, 1 m × 0.32 mm	0.4 µL Backflush	G2801-61110	G2801-61045	G2801-69045
MolSieve 5A PLOT, 10 m × 0.32 mm PLOT U, 3 m × 0.32 mm	1.0 µL Backflush	G2801-60501	G2801-61046	G2801-69046
PLOT U, 8 m × 0.32 mm PLOT Q, 1 m × 0.32 mm	1.0 µL Backflush	G2801-60502	G2801-61047	G2801-69047
Alumina PLOT, 10 m × 0.32 mm Alumina PLOT, 1 m × 0.32 mm	0.4 µL Backflush	G2801-60503	G2801-61048	G2801-69048

* For refinery gas analyzer, G2804A

Figure 1 Label on top of GC module

Types of replacement modules

In general, you can replace one type of GC module with one of a different type. For example, you could replace a 4 m OV-1 unit with fixed injector (part no. G2801-60507) with a 6 m PLOT U

unit with fixed injector (part no. G2801-60514) or with a 4 m OV-1 unit with variable injector. However, the new module **must** use the **same** carrier gas as the unit it replaces.

At this time, installing a GC module in a previously unused channel is not supported.

Tools required

- Torx T-10 driver
- Torx T-20 driver
- Needle nose pliers (helpful for disconnecting cables)
- Pozidriv screwdriver
- Flat-bladed screwdriver

Prepare the GC

Get ready for service

Before beginning work on an instrument, use the Agilent Cerity Networked Data System for Chemical QA/QC (Cerity) software to prepare the gas chromatograph (GC) for service. When the instrument is not in a sample run:

1. Set the heated zones where you will be working to < 40°C or OFF.
2. After the column cools, turn OFF all gas flows.
3. Turn OFF any other feature that could be hazardous or waste resources.
4. When the heated zones reach < 40°C, open the ConnectAdmin utility.

CAUTION The instrument must be disconnected from Cerity before replacing hardware.

5. Select the instrument to be serviced in the “Instruments Enabled” list, and press **Disconnect**.

Update the instrument firmware

Your new GC module comes from the factory with the latest firmware installed. To keep your instrument up-to-date with the new GC module, Agilent provides the latest instrument firmware as part of the kit. Before installing the new GC module, you must update the instrument firmware.

1. Insert the CD-ROM labeled “Firmware Update” provided in the kit into your PC.
2. Browse the CD, and open the file called **readme.htm**.
3. Follow the instructions in the file.

CAUTION During firmware update, do **NOT** turn off instrument power until prompted to do so by the update program. Turning off power during the update can render the instrument unusable.

Remove the Old GC Module

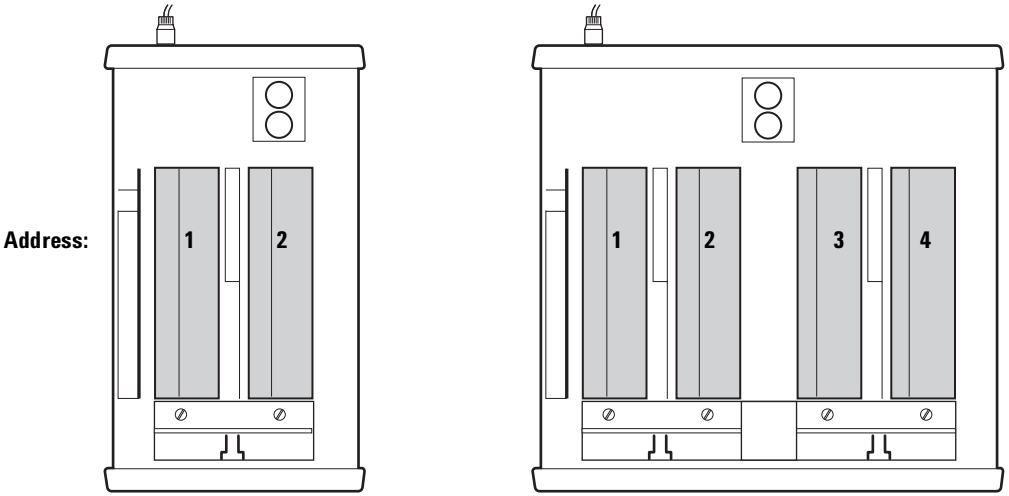
The photos and screen images used in this procedure illustrate how to remove and replace the left, or Channel A, GC module in a 2-channel instrument. The process is similar for any channel and instrument chassis.

You can replace only one GC module at a time.

Decommission the old GC module

CAUTION Decommission only one GC module at a time.

The 3000 Micro GC internally communicates to each installed GC module using a unique address. For a 2-channel system, the addresses used are 1 and 2. For a 4-channel system, these addresses are 1 through 4. See Figure 2.



Communications address	Corresponding Cerity channel
1	A
2	B
3	C
4	D

Figure 2 Default GC module serial communications addresses

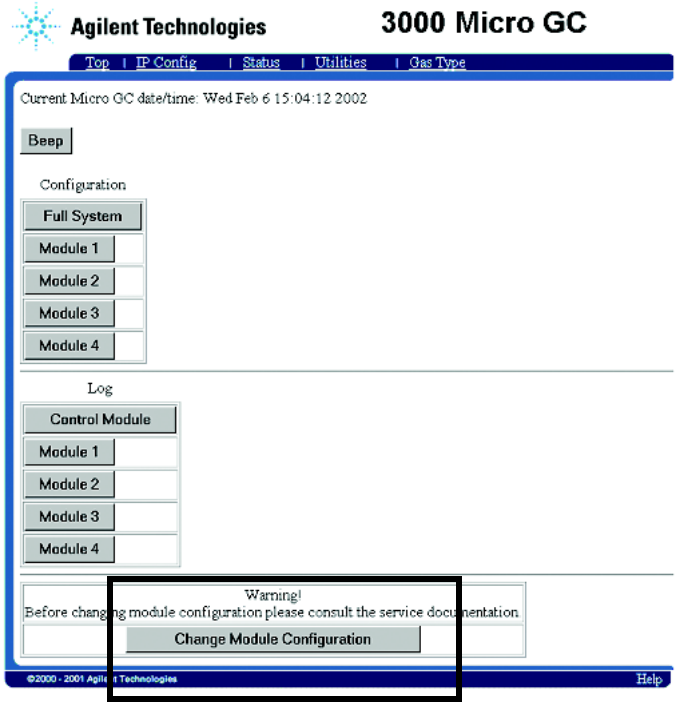
Before replacing a GC module, you must first disable the GC module's internal address by "decommissioning" it. The procedure below describes this process for replacing GC module 1 (channel A) in a 2-channel instrument. The process is similar for other configurations.

1 Open Internet Explorer and enter the GC's IP address, for example, `http:\\10.1.1.101`. The instrument's internal utilities will appear.

2 Select the **Status** tab, and review the status information for the defective GC module. If no status information appears for it, skip the rest of this section and proceed with "Remove the old GC module" on page 13.

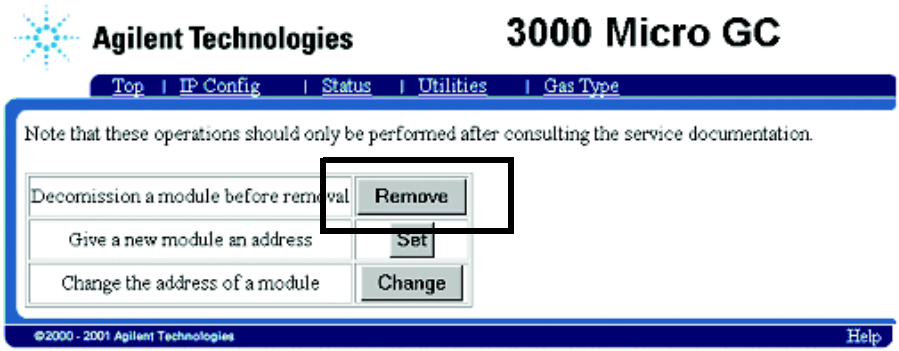
3 Select the **Utilities** tab.

4 Select **Change Module Config**.



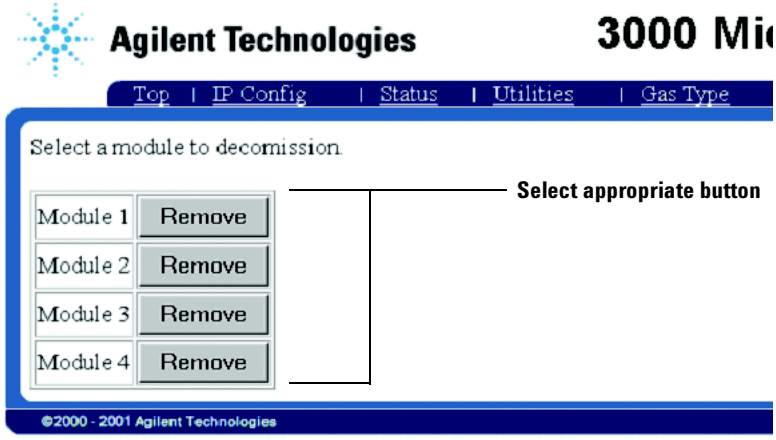
5 Two caution messages appear. Select `OK` on each to continue.

6 Select `Remove`.

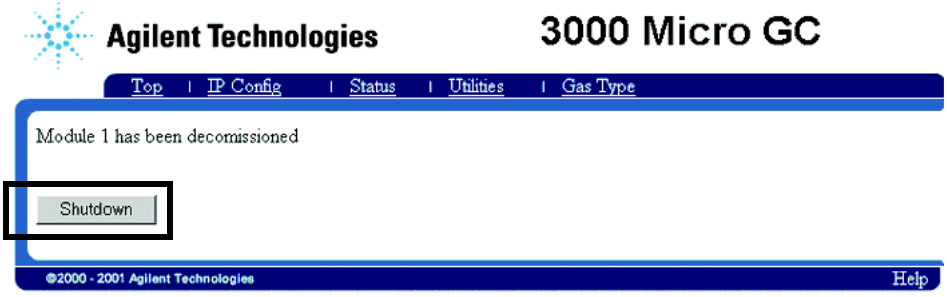


CAUTION Once a GC module is decommissioned, it can no longer be used until it is recommissioned.

7 Select **Remove** next to the GC module to decommission. A caution appears. Select `OK` to decommission the GC module.



8 A confirmation message appears. Select **Shutdown**. The instrument software will start to shut down.



CAUTION Do not turn off the power immediately. The GC must write to its configuration files. If you turn the power off too soon, you can corrupt the files and make the instrument unusable.

You must wait 3 full minutes before turning the instrument off.

9 Wait **at least** 3 full minutes.

10 Turn off the instrument.

Remove the old GC module

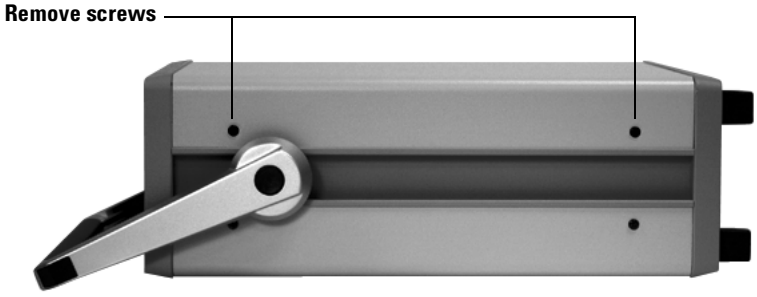
The photos illustrate how to replace the left, or Channel A, GC module in a 2-channel GC. The process is similar for any channel.

CAUTION

During this process, you will expose the internal components of the unit. To avoid damaging the unit, turn the power switch off and disconnect all external power to the unit.

Electrostatic Discharge (ESD) can damage electronic components. Wear a grounded wrist strap to avoid damaging the instrument. A disposable wrist strap is provided.

1 With a Pozidriv screwdriver, remove the two screws on each side of the top cover. Lift and remove the top cover. See Figure 3.



Two channel instrument shown.
Four channel chassis is similar.

Figure 3 Top cover screws

2 Loosen the thumbscrews in the manifold cover plate and remove it. See Figure 4.

- In the two screw design, slide the manifold cover plate towards the GC module to disengage the hook in the cover plate from the tab in the chassis.

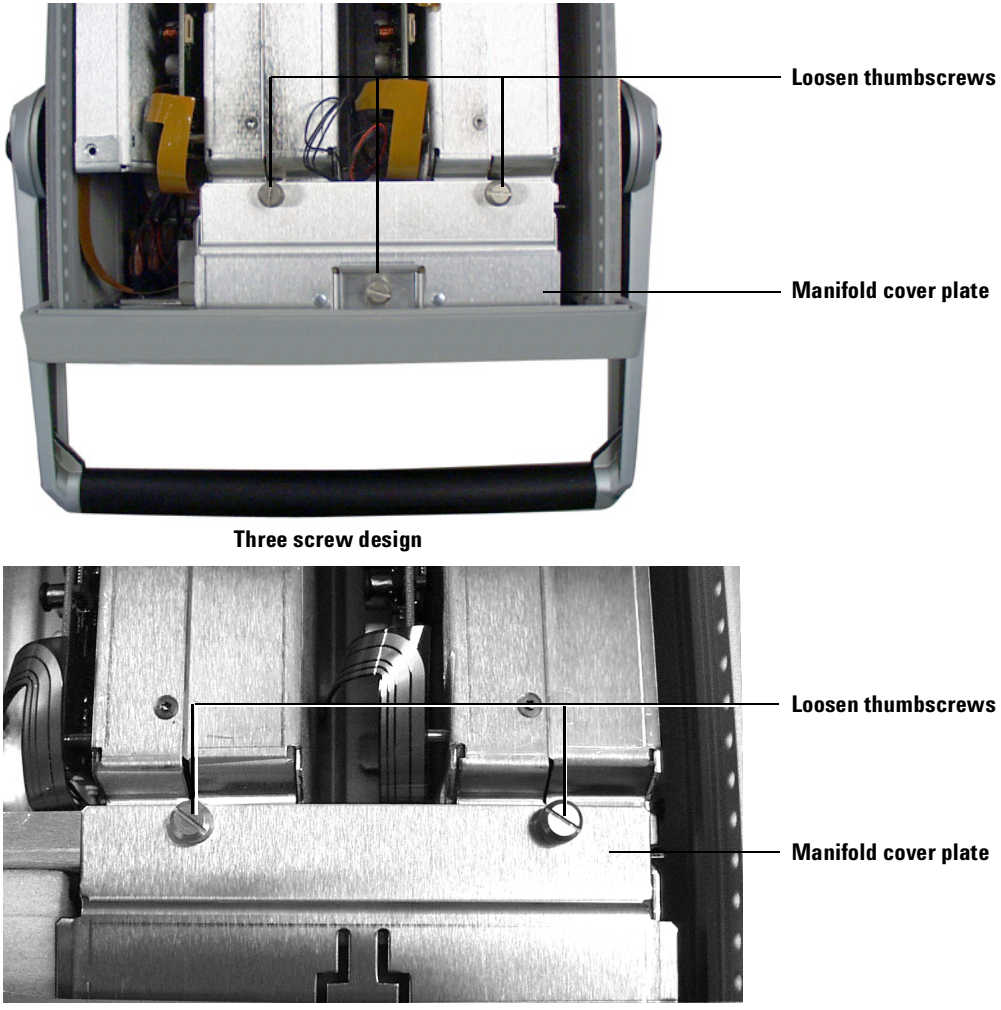
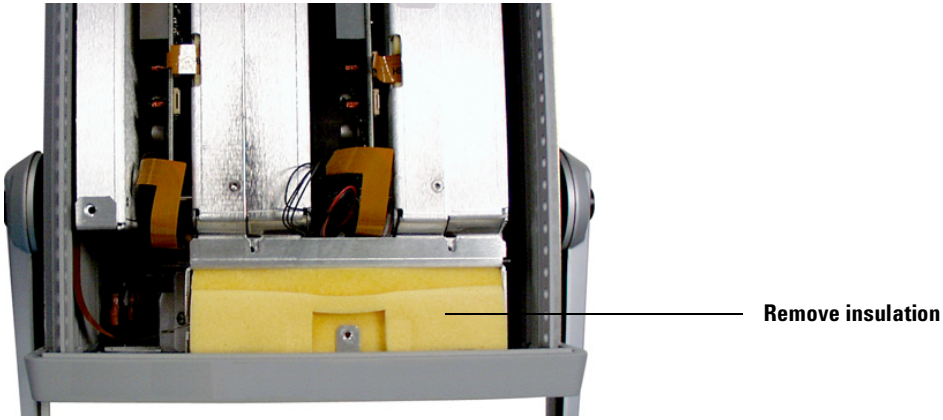


Figure 4 Loosen thumbscrews and remove manifold cover plate

3 Carefully remove the manifold insulation. Save it for re-use. See Figure 5.



2-channel instrument shown.
4-channel chassis is similar.

Figure 5 Remove inlet manifold insulation

4 Loosen the screw in the manifold fitting at the back of the GC module. See Figure 6.

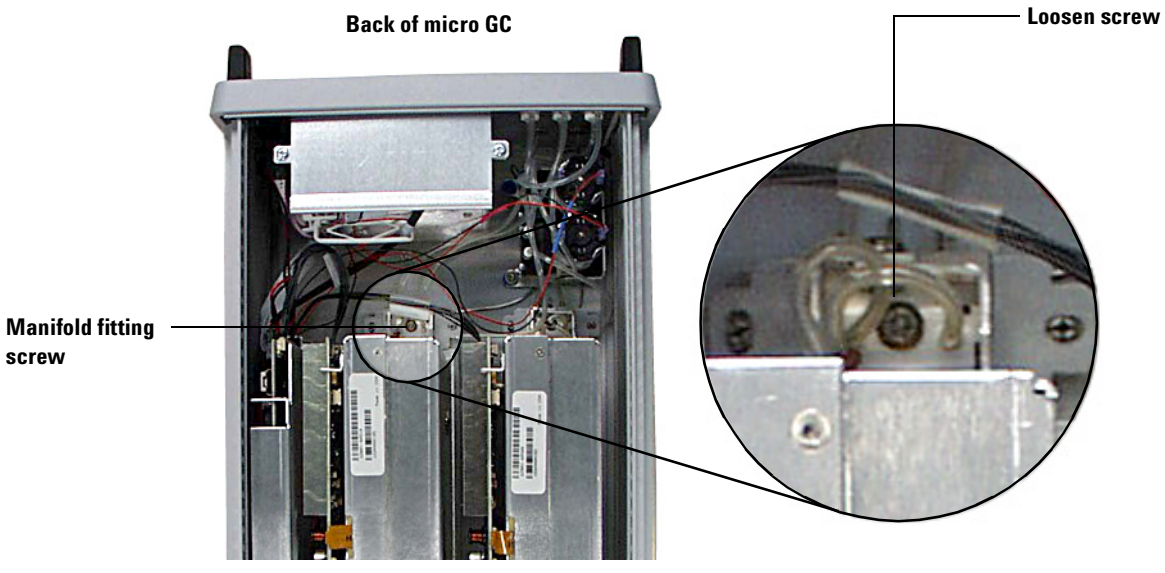


Figure 6 Disconnect GC module gang block

5 Disconnect the inlet manifold fitting from the GC module input fitting. See Figure 7.

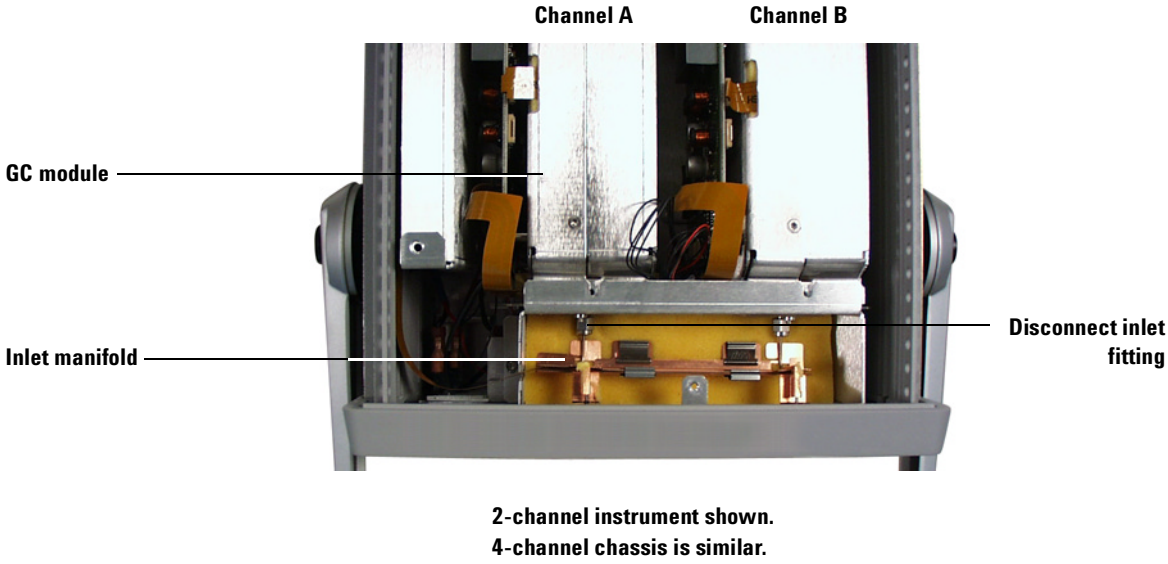


Figure 7 Disconnect inlet fitting

6 **For a 2-channel unit:** Disconnect the cables leading from **both** GC modules, if present, to the communications board connectors for both GC modules. See Figure 8.

For a 4-channel unit: Disconnect any communications cable leading to the GC module. If needed, also disconnect the power cables leading to the fan. See Figure 8.

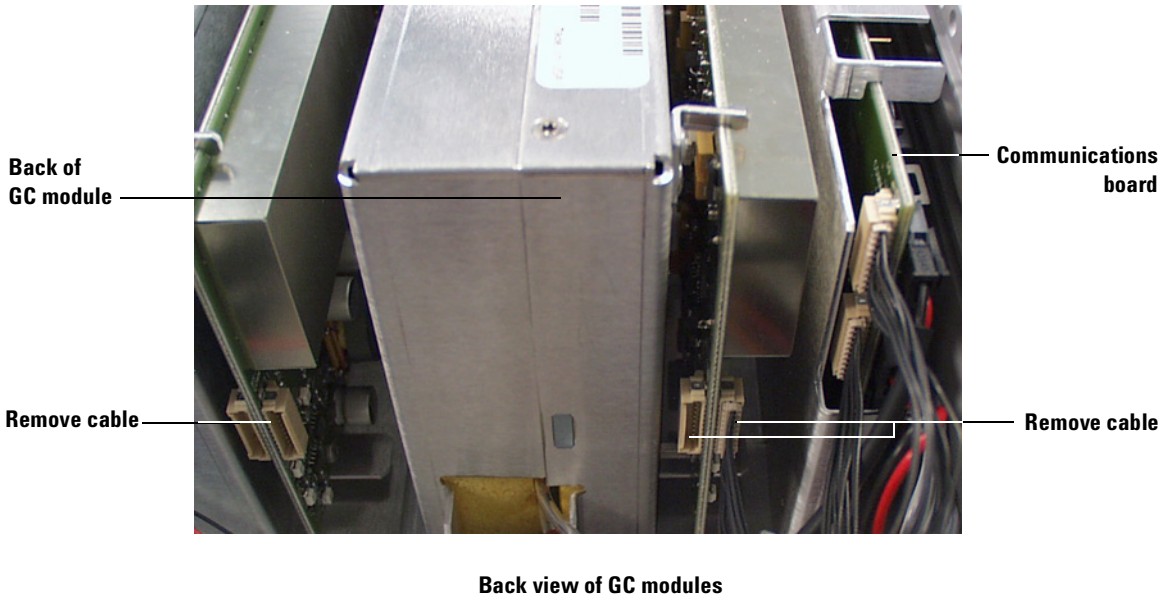
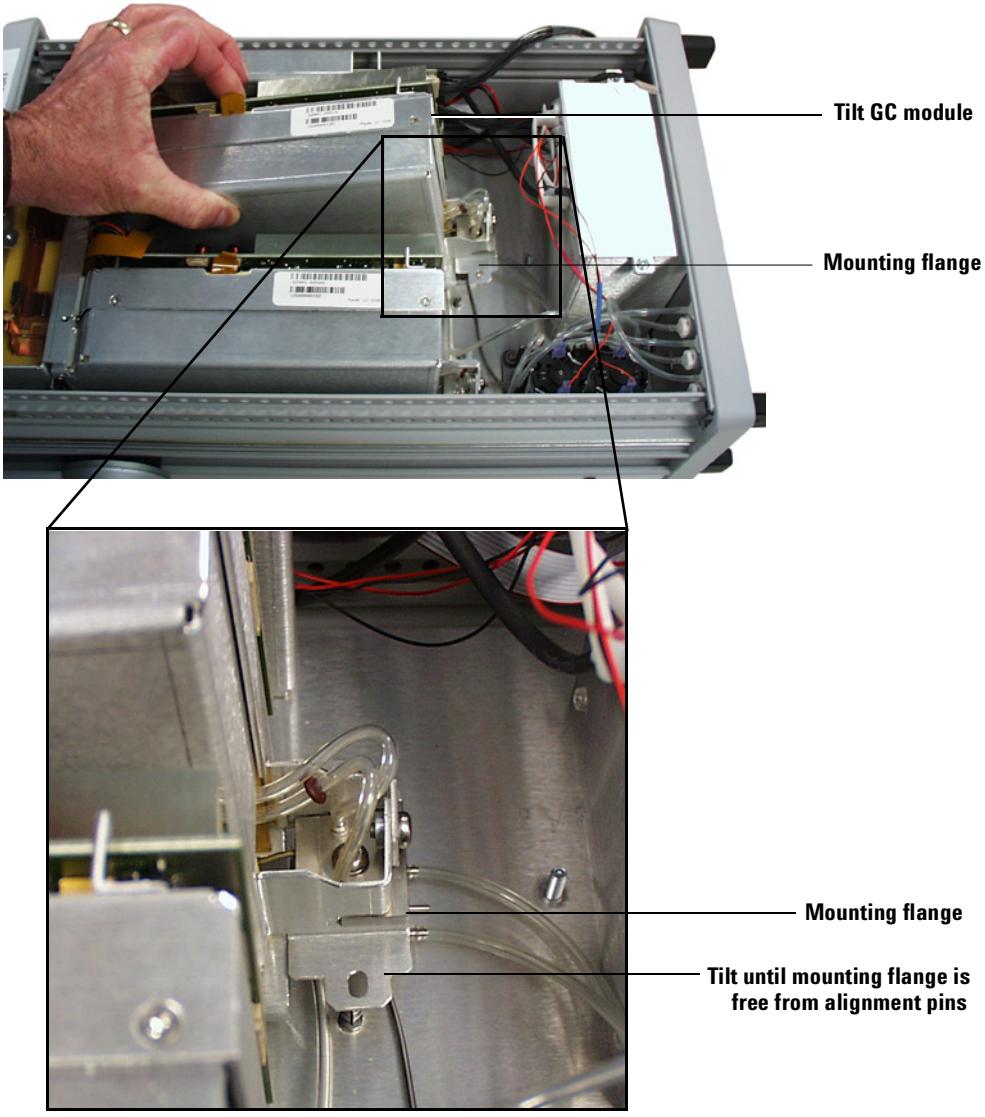


Figure 8 Disconnect communication cable

7 Tilt the back of the GC module up until the mounting flange clears the alignment pins. Then, slide the GC module towards the back of the instrument to remove it. Be careful to avoid damaging any wires or cables. See Figure 9.



2-channel instrument shown.
4-channel chassis is similar.

Figure 9 Remove the GC module

8 Inspect the gang block fitting on the bottom of the chassis to make sure the mating surface is clean. See Figure 10.

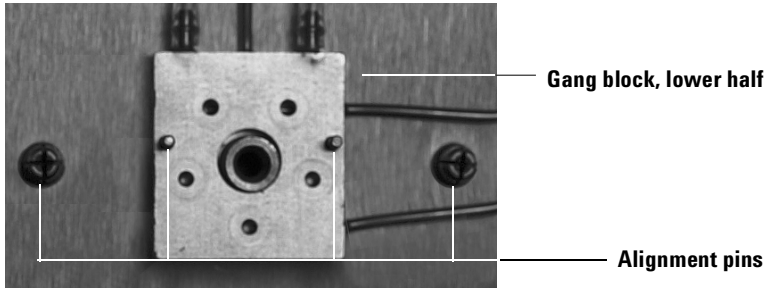


Figure 10 Inspect the gang block fitting

Install and Configure the Replacement GC Module

Install the new GC module

1 Remove the small metal plate covering the O-rings on the upper gang block. See Figure 11.

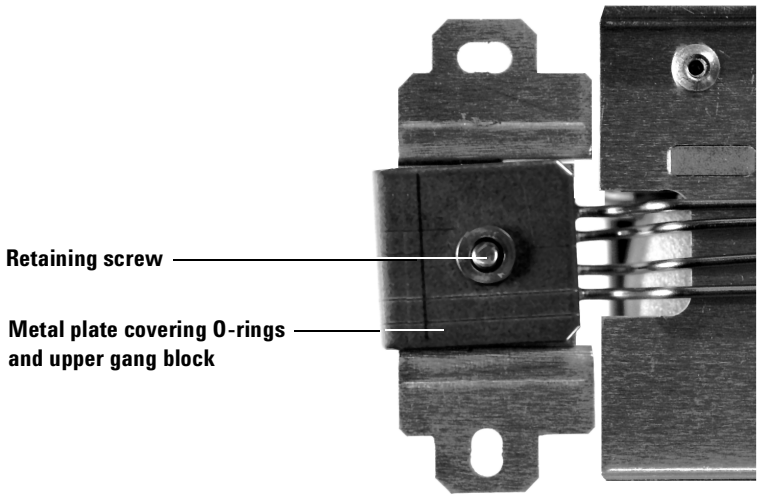


Figure 11 Protective plate on upper gang block

2 Inspect the GC module mounting flange fitting to verify all new O-rings on the replacement GC module are undamaged and seated flat. See Figure 12.

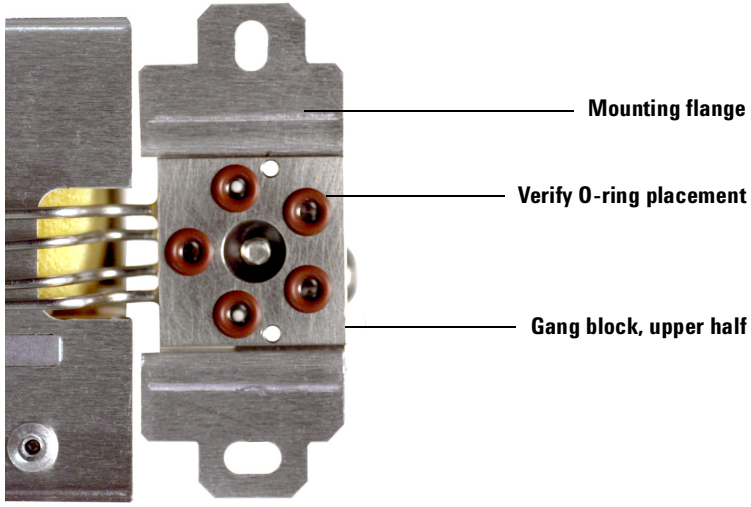


Figure 12 Inspect the new O-rings

3 Remove the protective cap over the GC module inlet fitting. See Figure 13.

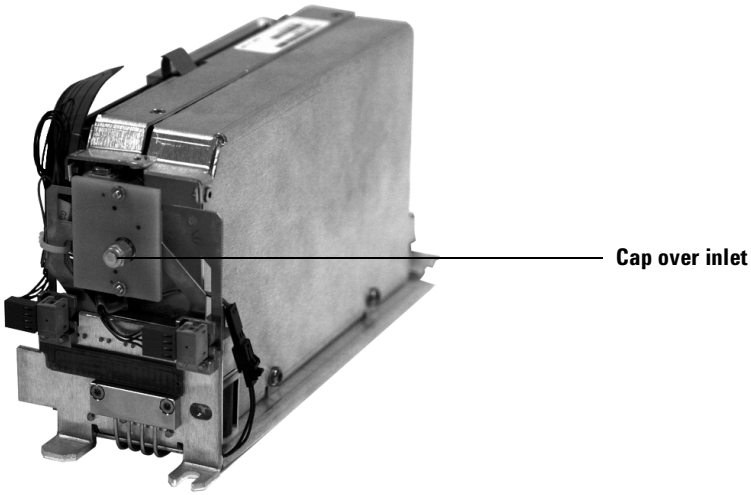


Figure 13 Typical Agilent 3000 GC module

4 Insert the forward edge of the replacement GC module under the lip of the inlet manifold frame so that the module input fitting mates with the Swagelok® fitting in the inlet manifold. See Figure 14.

5 Lower the back of the GC module until the mounting flange mates with the alignment pins in the chassis.

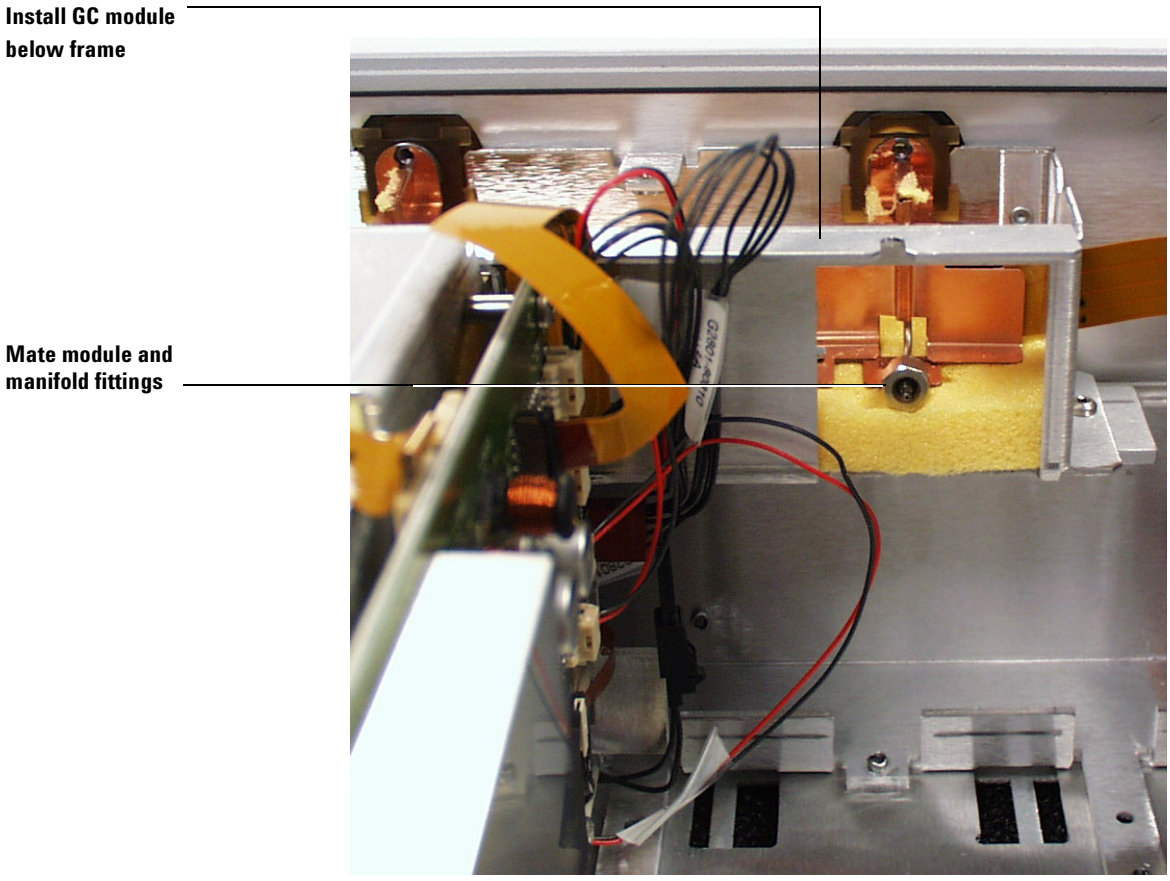


Figure 14 Install the new module

6 Connect the communications cables. See Figure 15 for typical cabling examples.

- Connect no more than 2 GC modules in series per communications board connection.

- The GC modules and communications board use parallel communications; both connectors on each item function equivalently.

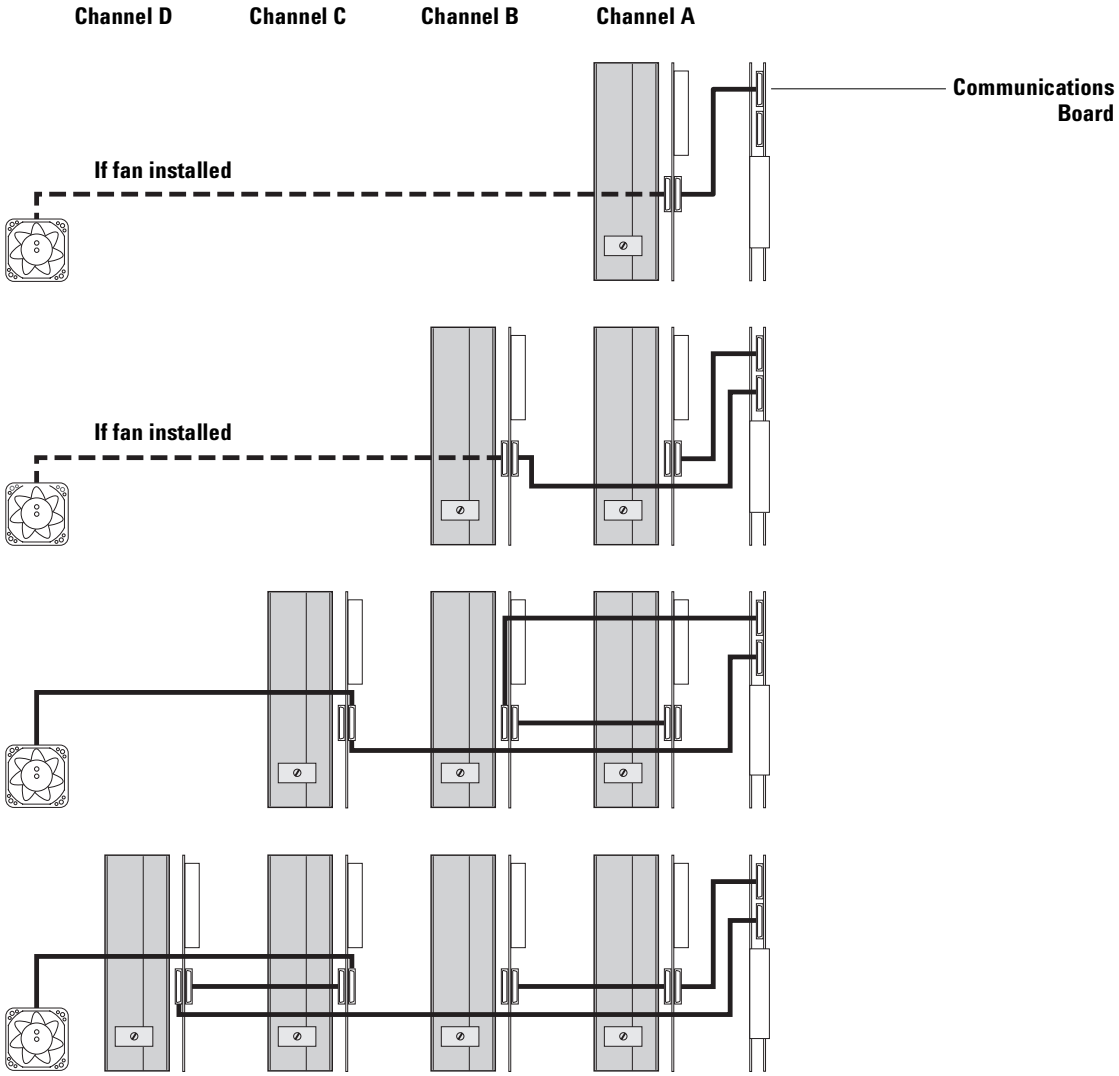


Figure 15 Examples of GC module cabling

7 Connect the inlet manifold to the GC module input fitting. Using a wrench, tighten 1/4-turn past finger tight.

8 Tighten the screw in the mounting flange.

9 Carefully replace the inlet manifold insulation.

10 Install the manifold cover plate and the top cover.

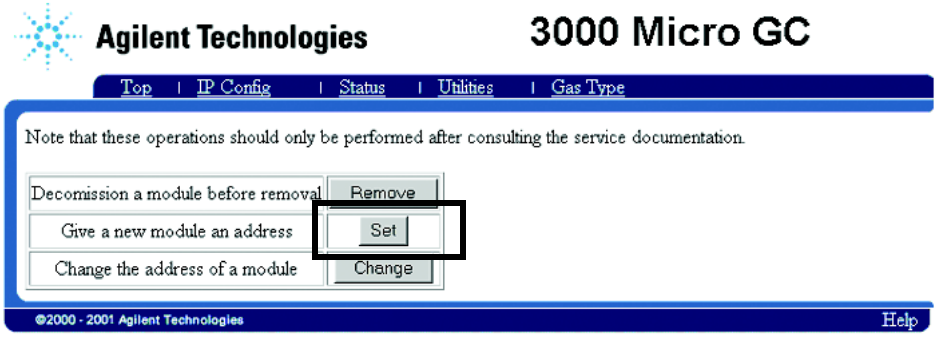
Commission the new module

After, installing the new GC module, you must configure it for use by “commissioning” it.

1 Turn on the GC and wait about 2 minutes.

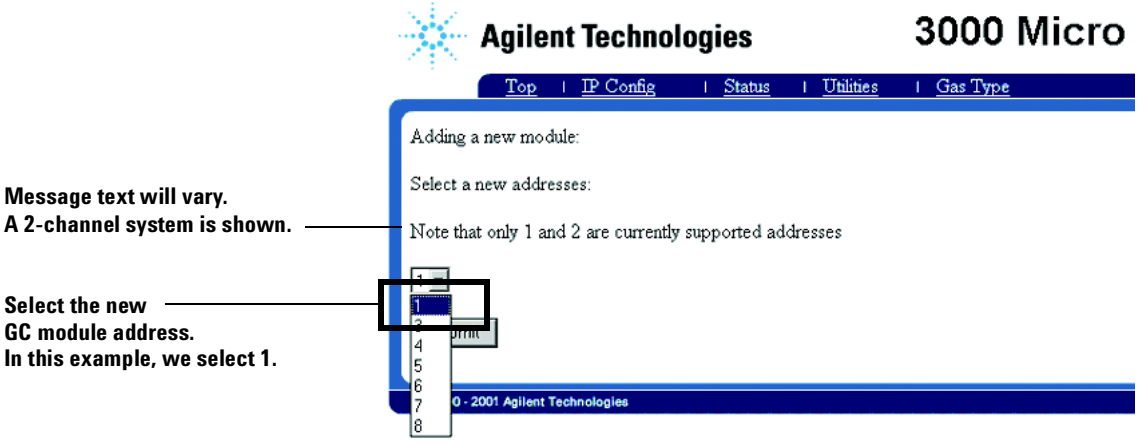
2 In you web browser, select the **Top** tab. When the GC responds, it has completed its reboot process.

3 Select the **Utilities** tab, then select **Set** to give the new GC module an address.

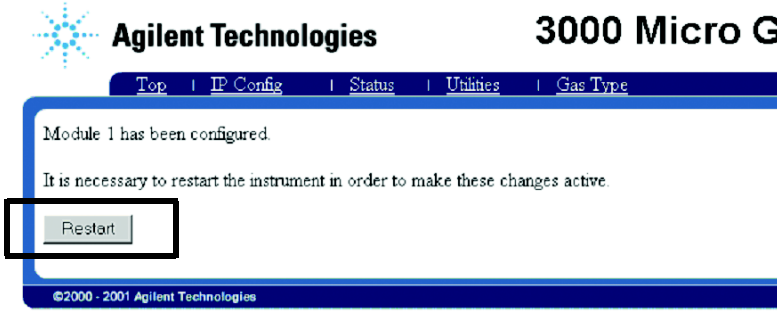


4 Use the drop down menu on the lower left portion of the screen to select the correct address for the new GC module.

- Only the available addressees are listed
- See Figure 2 for default values



5 After selecting the address, select **Restart** to incorporate the changes.



CAUTION Do not turn off the power. The GC must write to its configuration files. If you turn the power off, you can corrupt the files and make the instrument unusable.

6 After restart, wait **at least** 3 full minutes.

7 Select the **Top** tab, or use one of the links provided on the GC web page. When the GC responds, installation is complete. Verify the new GC module status.

Using the New GC Module

Enable the instrument

After installing the replacement GC module and updating the GC firmware, configure Cerity to use the updated GC.

1 Open the ConnectAdmin Utility in Cerity.

2 In the Instruments Available list, select the instrument containing the new GC module.

3 Press **Connect**.

Confirm or update methods

Changes that require Cerity method updates

If updating GC firmware from revision 1.x, or if replacing a GC module with one of a different type (for example, the new GC module uses a different column than the original), Cerity will treat the 3000 Micro GC as a "new" instrument.* Your old methods will be saved but must be updated before use.

Refer to the file **readme.htm** on the firmware update CD-ROM for the latest details about method compatibility issues.

To update existing methods

Update each desired method as follows:

1 In Cerity, go to the Method View and select **Create**.

2 In the dialog box that appears, select **Copy an existing method**. Enter the required information, and select the old 3000 GC method to copy. Select **OK**. Cerity will create a new method, compatible with the updated instrument, containing all applicable settings from the old method.

3 If you installed a different GC module type, input any new parameters.

See the Cerity on-line help for details about using the software.

* This behavior prevents the accidental use of an outdated or inappropriate method.

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