NOTICE: This document contains references to Varian. Please note that Varian, Inc. is now part of Agilent Technologies. For more information, go to **www.agilent.com/chem.**

Agilent Technologies

PRE-INSTALLATION MANUAL

All Micro-GC systems and related products

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Safety Information

Information

To prevent any injury to the user or any damage to the instrument it is essential that you read the information in this chapter.

If this manual is not in your native language or if you have problems understanding the text, we advise you to contact your Varian office for assistance. Varian cannot accept responsibility for any damage or injury caused by misunderstanding of the information in this manual.

Operating Instructions

This instruction manual is provided to help you establish operating conditions, which will permit safe and efficient use of your equipment.

Special considerations and precautions are also described in the manual, which appear in the form of **NOTES**, **CAUTIONS**, and **WARNINGS** as described below (next page).

It is important that you operate your equipment in accordance with this instruction manual and any additional information, which may be provided by Varian. Address any questions regarding the safe and proper use of your equipment to your local Varian office.

Information to aid you in obtaining optimal performance from your instrument.

Alert you to situations that may cause moderate injury and/or equipment damage, and how to avoid these situations.

Alerts you to potentially hazardous situations that could result in serious injury, and how to avoid these situations.

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PRE-INSTALLATION REQUIREMENTS

To assure a quick, safe, and uncomplicated installation, we kindly request you to make provisions as stated below before your Varian, Inc. service engineer installs your instrument(s).

Environmental requirements

- Pollution degree: 2
- Humidity: 0% to 95% RH (non condensing)
- Temperature: 0°C to +50°C operating.
- The Micro-GC is intended for indoor use.
- The Micro-GC should be protected from corrosive chemicals or gases, dust/particulate accumulation, and direct venting of air conditioners, heaters, furnaces or fans.

Environmental requirements EDU-Varian Sample Concentrator

- Humidity: 5% to 95% RH (non condensing)
- Temperature: 0°C to +45°C operating.

Space requirements

- Allow sufficient bench space to permit installation of workstations, integrators and other Micro-GC equipment. The table below lists the physical dimensions and weight of the Micro-GC and the peripheral instruments which may be installed near it.
- Allow 10-20 cm of space at the sides and rear of the Micro-GC to permit free air circulation.

	Height		***Width***		***Dept***		***Weight***	
Instrument	Inch.	Cm	Inch.	Cm	Inch.	Cm	Lb.	Kg
Micro-GC 2-CH	11	28	6.5	16	12	30	14	6
Micro-GC 4-CH	11	28	6.5	16	21.5	55	22	10
Power supply	2.5	6.4	4	9.5	7	17.8	2	1
Field case 2-CH	15	38	12	30	16	41	35	16
Field case 4-CH (with trolley)	18.5	47	15	38	28.5	73	68	30
EDU-Varian Sample Concentrator	4	9	8	21	10	26	5.5	2.5
Chromatography Workstation (computer with monitor, approximate values)	17	43	17	43	21	53	35	16

Power requirements

- Mains voltage of 100 to 240 Vac, frequency between 50-60 Hz.
- The mains group, supplying the mains socket(s), must be exclusively reserved for the instrument(s).
- The mains network should be properly grounded.
- Installation Category (overvoltage category): II

Power supply

Each instrument has a universal power supply:
- Micro-GC requires 12V Vdc, 130 W maximum.
- EDU-Varian Sample Concentrator requires 15Vdc,100W maximum.

Gas supply

- External gas supply

Gas cylinder provided with a proper working two-stage pressure assembly to adjust the carrier gas pressure to 550 Kpa ± 10 % (80 PSI± 10%).

- DMD transport gases

DMD transport gases will be Nitrogen or Zero Air depending on application.
The specification for the transport gases are:
Pressure range 200-550kPa +/- 10% (30-80 psi +/- 10%)
Zero Air
O_2 19.5 to 23.5%.
Total Hydrocarbons (THC) <0.1 ppm.
H_2O < 1 ppm.
CO_2 < 1 ppm.
CO < 0.1 ppm.
Balance gas = Nitrogen
Nitrogen
Grade 5 (99.999% purity)

Air supply via a compressor does not meet the specifications, and therefore must not be used other than in combination with the filter mentioned below!

In-house tests have shown that the use of an air compressor in combination with a Parker Balston Type 75-45 FTIR purge gas generator provides a constant air quality that allows proper functioning of the DMD. This filter is not supplied via Varian, but should be ordered via the local Parker representative or agent.
In order to match the consumption with the purge gas generator capacity between the generator and the CP4900-DMD a vent (1-5 liter per minute) needs to be included.

- Transfer gas EDU-Varian Sample Concentrator

Transfer gas **can only be** Nitrogen or Helium 550 Kpa ± 10 % (80 PSI± 10%)
Carrier gas and transfer gas type **MUST** be identical and can be supplied from a single source.

Hydrogen must NEVER be used!

- **Internal gas supply of the fieldcase**

  In order to fill the built-in carrier gas supply tank, a separate gas cylinder must be present having a pressure amply over 12000 kPa (120 bar, 1800 Psi).

- **Purity of applied gases**

  Gases in gas bottles must have a minimum purity of 99.999%

- **Safety regards**

  Gas bottles must be fixed to a table or to a wall.

Sealed radioactive source in the DMD

The DMD uses a radioactive nickel (Ni-63) source to generate beta$^-$ radiation (electrons) within a sealed cell.
In nearly all countries it is essential to have a license to import, handle, store, use, transfer and dispose of a sealed radioactive source.
The information that is needed to change or apply for a complete new license depends on local law.

Gas samples

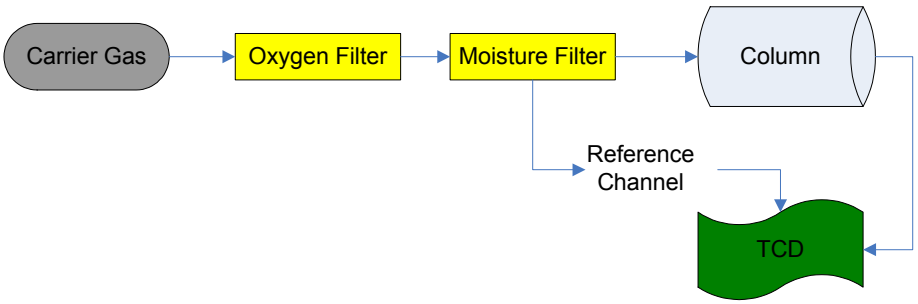
- **Only** gas samples should be supplied to “Sample-In”!
- Type of samples: non-condensing gas
- Samples other than non-condensing gases (aerosols, particles and polymers) must be filtered in advance (External filter kit part number: CP736729)
  Option: Genie filter
- Sample condition: non-condensing gas ambient to 110°C
- Sample pressure systems: between 0 and 100 kPa
- Sample pressure Preconcentrator EDU-Varian: Atmospheric pressure
- Outlet of sample container must fit a stainless steel capillary of 1/16" outside diameter, provided with a Swagelok ® female nut.

Carrier gas connection

The carrier gas line is connected from the bulk carrier gas tank to the Micro-GC on the rear panel **CARRIER IN** port. You are strongly advised not to use any plastic tubing. Use only properly rinsed copper or stainless steel tubing.

Recommended Gas clean filters

Detector
TCD Carrier gas: He, N_2, Ar Moisture filter: CP17971 Oxygen filter : CP17970



NOTE

CP-Gas Clean filters are filled with nitrogen. If you are not using nitrogen as the carrier gas, flush filters and gas lines after installation of a new filter.

Operation after Long Storage

Follow the procedure below if your Micro-GC has been stored for a long period!

- Put carrier gas on the Micro-GC
- Switch the Micro-GC ON
- Switch the TCD filament(s) OFF
- Set the column(s) temperature to it's maximum (depending on the column module)
- Condition the column module, preferably overnight. This will ensure you that all the water has been removed from the column module and no damage will occur to the TCD filaments

Outputs

The Micro-GC has different output ports for interface with a computer system.
Digital: 1x RS-232 port, 1x Ethernet port, 2x RS-232 ports for external events.

Network Requirements of the Micro-GC

- Customer Cable type should be Cat5 UTP / STP.
- Customer network should comply with Standard Ethernet (IEEE 802.3).
- The GC can be plugged into any 10BASE-T or 10/100BASE-TX compatible HUB or Switch.
- TCP-IP should be used on the Network.

Minimum Computer requirements for all Micro-GC systems

- Pentium processor > 1.5 GHz.
- Ram > 512 MB
- Hard disk space > 20GB
- Windows XP
- 1 USB port
- 1 Serial port