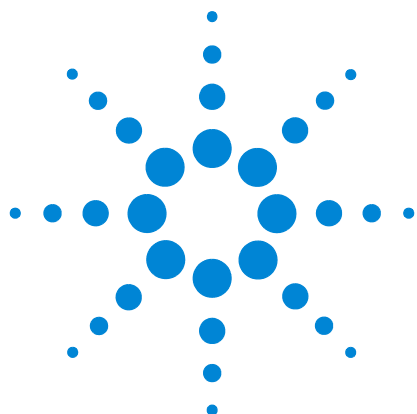




Agilent **490 Micro GC Field Case**

User Manual



Agilent Technologies

Notices

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CAUTION

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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.

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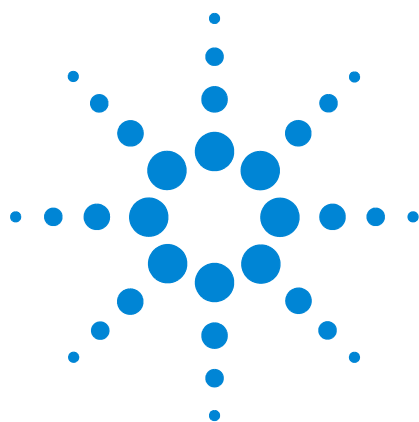
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AgilentProduct Name Variable
490 Micro GC Field Case

1 Getting Started

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Safety Information

In accordance with the Agilent commitment to customer service and safety, the:

- Micro GC Field Case and its accompanying documentation (NEN 5509) complies with the CE specifications and the safety requirements for electrical equipment for measurement, control, and laboratory use (CEI/IEC 61010-1), $cCSA_{us}$ and FCC-b.
- Battery Pack and Charger and its accompanying documentation complies with the Safety, Battery Pack UL2054, UL1015 (cabling) and CE, Charger to CE, and documentation to NEN 5509.

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

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

If you have any problems understanding the text in this manual, we advise you to contact your Agilent Technologies service office for assistance. Agilent Technologies, Inc. cannot accept responsibility for any damage or injury caused by misunderstanding of the information in this manual.

Special considerations and precautions appear in this manual in the form of **NOTES**, **CAUTIONS**, and **WARNINGS**. It is important that you operate your equipment in accordance with the instructions in this manual and any additional information, which may be provided by Agilent Technologies, Inc. Address any questions regarding the safe and proper use of your equipment to your local Agilent office.

Follow these safety practices to ensure safe equipment operation:

- Perform periodic leak checks on all supply lines and pneumatic plumbing.
- Do not allow gas lines to become kinked or punctured. Place lines away from foot traffic and extreme heat or cold.
- Store organic solvents in fireproof, vented, and clearly labeled cabinets so they are easily identified as either toxic materials or flammable materials, or both.
- Do not accumulate waste solvents. Dispose of such materials through a regulated disposal program and not through municipal sewage lines.

NOTE

This instrument has been tested per applicable requirements of the EMC Directive as required to carry the European Union CE Mark. As such, this equipment may be susceptible to radiation/interference levels or frequencies, which are not within the tested limits.

WARNING

This instrument is designed for chromatographic analysis of appropriately prepared samples. It must be operated using appropriate gases, solvents, or both, and within specified maximum ranges for pressure, flows, and temperatures as described in this manual. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

WARNING

It is the responsibility of the Customer to inform Agilent Customer Support Representatives if the instrument has been used for the analysis of hazardous samples, prior to any instrument service being performed or when an instrument is being returned to the Agilent Service Center for repair.

CAUTION

- Disconnect the instrument from all power sources before removing the protective panels to avoid exposure to potentially dangerous voltages.
- When it is necessary to use a non-original power cord plug, ensure the replacement cord adheres to the color-coding and polarity described in the manual and all local building safety codes.
- Replace faulty or frayed power cords immediately with the same type and rating.
- Place this instrument in a suitable location with sufficient ventilation to remove gases and vapors. Space around the instrument must be sufficient to enable cooling of the instrument.
- Before plugging the instrument in or turning the power on, always make sure that the voltage and fuses are set appropriately for your local power source.
- Do not turn the instrument on if there is a possibility of any kind of electrical damage. Instead, disconnect the power cord and battery packs and contact your Agilent office.
- Insert the supplied power cord into a power outlet with a protective earth ground connection. When using an extension cord, ensure that the cord is also properly grounded.
- Do not change the external or internal grounding connections as this could endanger you, or damage the instrument, or both.
- The instrument is properly grounded when shipped. You do not need to make any changes to the electrical connections or to the instrument chassis to ensure safe operation.
- When working with this instrument, follow the regulations for Good Laboratory Practice (GLP). Take care to wear safety glasses and appropriate clothing.
- Do not place containers with flammable liquids on this instrument. Spilling the liquid over hot parts may cause fire.
- This instrument may use flammable or explosive gases, for example, hydrogen under pressure. Be sure to be familiar with and to accurately follow the operation procedures prescribed for those gases before operating the instrument.
- Never try to repair or replace any component that is not described in this manual without the assistance of an Agilent service engineer. Unauthorized repairs or modifications will result in rejection of warranty claims.
- Always disconnect the AC power cord and battery packs before attempting any type of maintenance.
- Use proper tools when working on the instrument to prevent danger for you, damage to the instrument, or both.
- Do not attempt to replace fuses in this instrument.
- Damage can result if the instrument is stored under unfavorable conditions for prolonged periods (for example, subject to heat, or water).
- Do not shut off column flow when the oven temperature is high, it may damage the column.
- This unit has been designed and tested in accordance with recognized safety standards and designed for use indoors.
- If the instrument is used in a manner not specified by Agilent Technologies, the protection provided by the instrument may be impaired.
- Substituting parts or performing any unauthorized modification to the instrument may result in a safety hazard.
- Changes or modifications not expressly approved by the responsible party for compliance could void the user's authority to operate the equipment.

Initial Inspection

The Micro GC Field Case will arrive packed in one large box and one or more smaller cartons. Inspect the cartons carefully for damage or signs of rough handling. Report damage to the carrier and to your local Agilent Technologies, Inc. office.

Unpack the Micro GC Field Case and accessories carefully and transfer to the work area, using proper handling techniques. Inspect the Micro GC Field Case and accessories carefully for damage or signs of rough handling. Report damage to the carrier and to your local Agilent Technologies, Inc. office.

WARNING

Avoid back strain or injury by following all safety precautions when lifting (heavy) objects.

The 4-channel Field Case will be supplied with a trolley making transport easier.



Figure 1 Field Case with trolley

Unpacking

Check the packing list to ensure you have received all that you require.

Packing list

- ☐ Micro GC Field Case
- ☐ Accessories (optional)

Table 1 Accessories

Car cigarette lighter adapter	CP740291
Charger for 12 V battery pack NiMH	CP740427
Battery pack NiMH	CP740328
Carrier gas refill assembly BS3	CP737161
Carrier gas refill assembly DIN10	CP736964
Carrier gas refill assembly DIN6	CP738012
Carrier gas refill assembly CGA580	CP737013
Carrier gas refill assembly FRANCE	CP737381

Carrier gas

The carrier gas supply tank is empty (transport regulations) and should be refilled using the procedure “[Carrier Gas Refill Instructions](#)” on page 24.

The common carrier gas for the Micro GC is He, N₂, or Ar. The recommended purity for carrier gas is 99.995 % minimum.

Instrument Overview

Congratulations and thank you for purchasing the Agilent Technologies, Inc. Micro GC Field Case ([Figure 2](#)). The Micro GC Field Case is used to bring the Micro GC (2 and 4-Channel) to the sample source. Operation is continuous with interchangeable, rechargeable battery packs, and an internal gas supply.



Figure 2 Micro GC Field Case

For problems or questions about your Micro GC Field Case, please contact your nearest Agilent Technologies, Inc. representative.

Front view

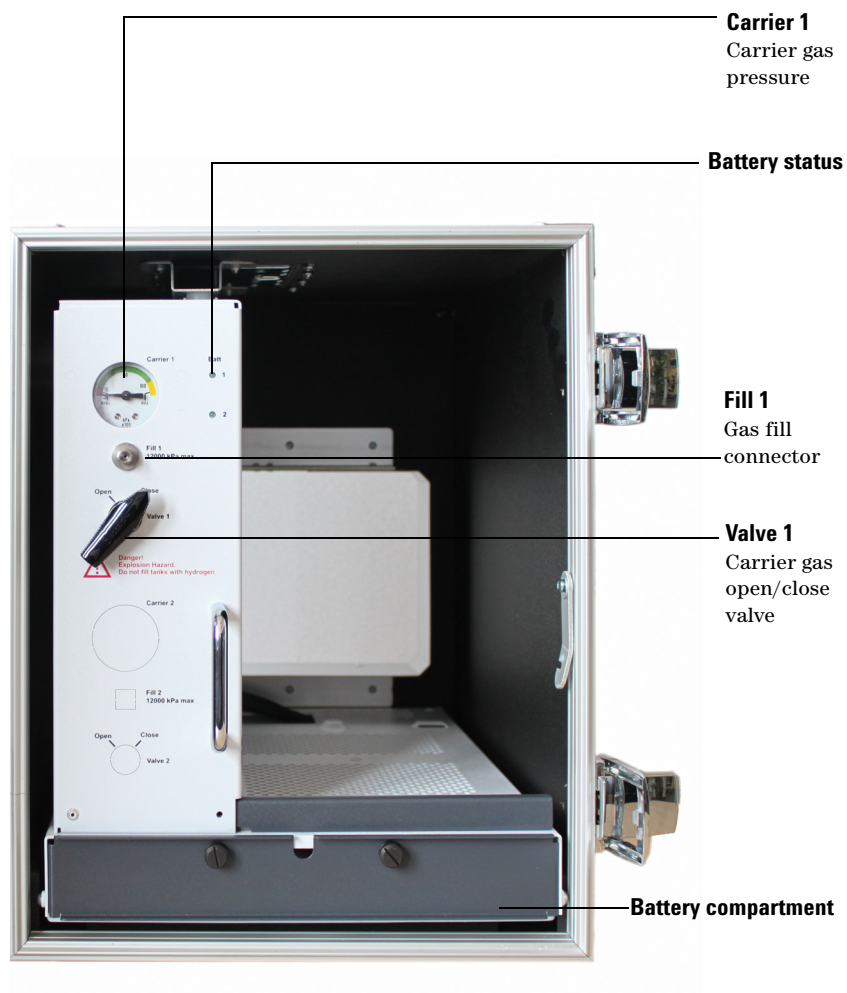


Figure 3 Front view

For more information on the Battery status see [“Battery Pack”](#) on page 30.

For more information on the Carrier 1 and Fill 1 see [“Carrier Gas Refill Instructions”](#) on page 24.

Back view

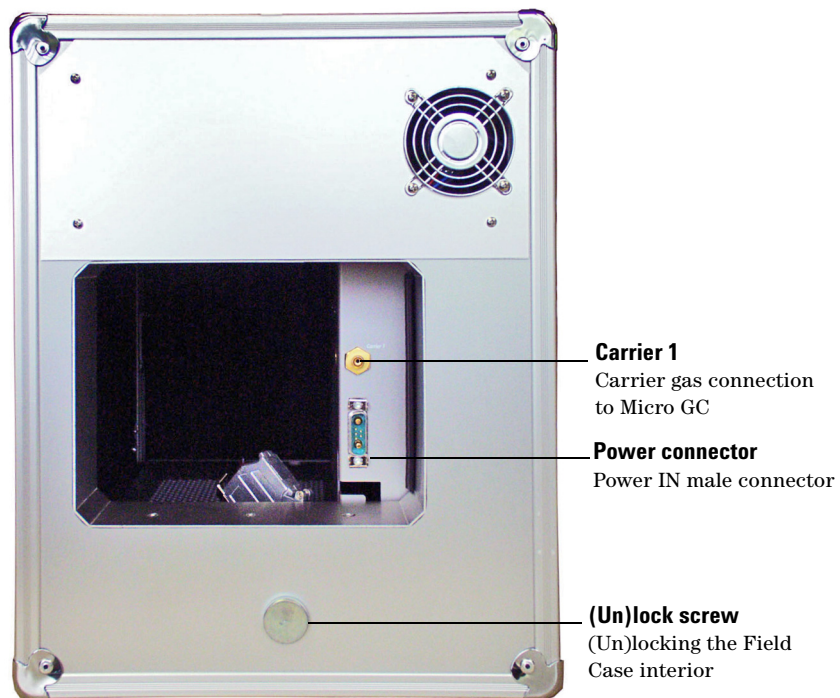


Figure 4 Back view

Power source

- Voltage of 12 Vdc, 150 W
- Only use the power supply (p/n CP742999) provided with the Micro GC. See the Micro GC User Manual for more information.

Battery pack

The Micro GC Field Case is equipped with a 12 V 10 Ah (ampere-hours) Ni-MH (Nickel metal hydride) battery. See [Chapter 3 “Battery Pack and Charger”](#) on page 29 for more details.

Depending on the condition in which the Micro GC is used, the battery will provide power up to 8 hours before recharging becomes necessary.

If the column temperature is frequently set above 50 °C the battery will need recharging sooner.

When reconditioning columns or stabilizing the system it is advisable to plug in the power supply during this period.

The 2-channel system is supplied with one battery. The 4-channel system is supplied with two batteries.

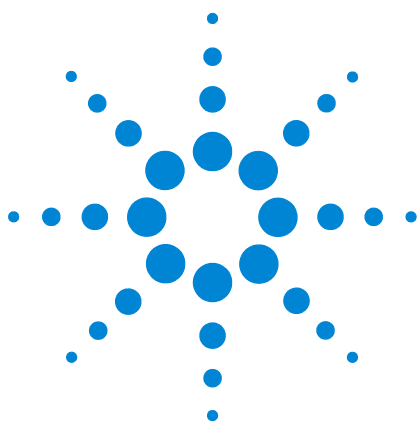
Use the Field Case in combination with the Micro GC.

All ambient requirements for the Micro GC, except for the maximum operating temperature, are applicable to the Field Case. Please read the Micro GC user manual for more details.

When operating the Micro GC in the Field Case, while using the batteries, the maximum allowable ambient temperature is 48°C.

WARNING

This batter (p/n CP740328) is designed for use in combination with the Micro GC Field Case. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



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Connecting the Micro GC to the Field Case

- 1 Loosen the screw at the back of the Field Case.

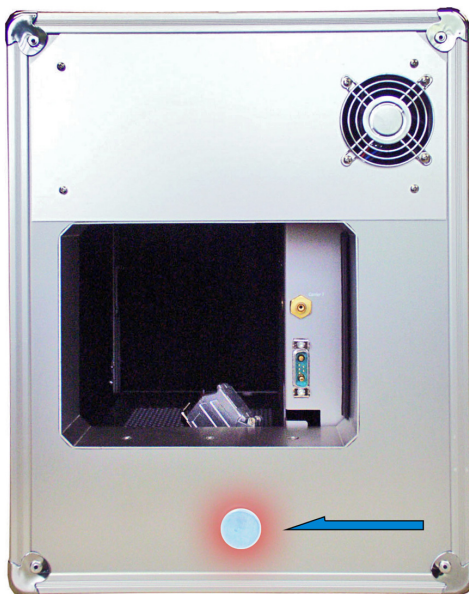


Figure 5 Screw to loosen

- 2 Remove the Field Case interior by gently pulling at the handgrip.



Figure 6 Handgrip to remove interior

WARNING

Do not install the batteries or charge the carrier gas tank until all parts are fully assembled and reinstalled inside the Field Case.

- 3 Place the interior on a flat table and rotate 90° counter clockwise.

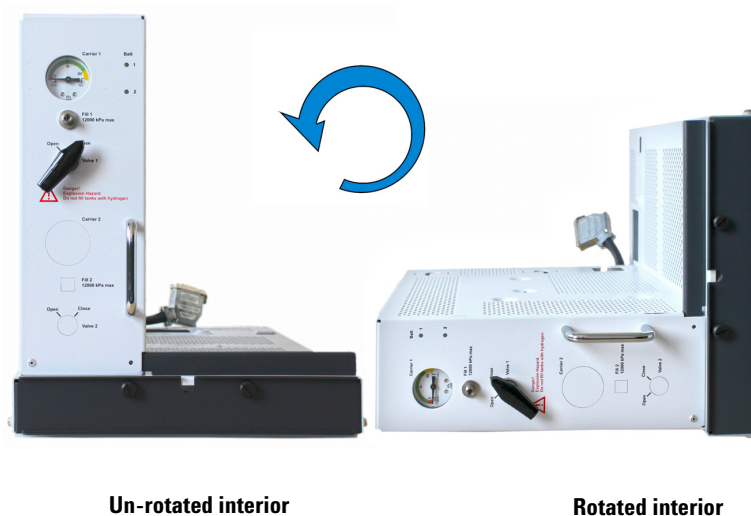


Figure 7 Rotate the interior

- 4 Place the Micro GC on the Field Case interior.

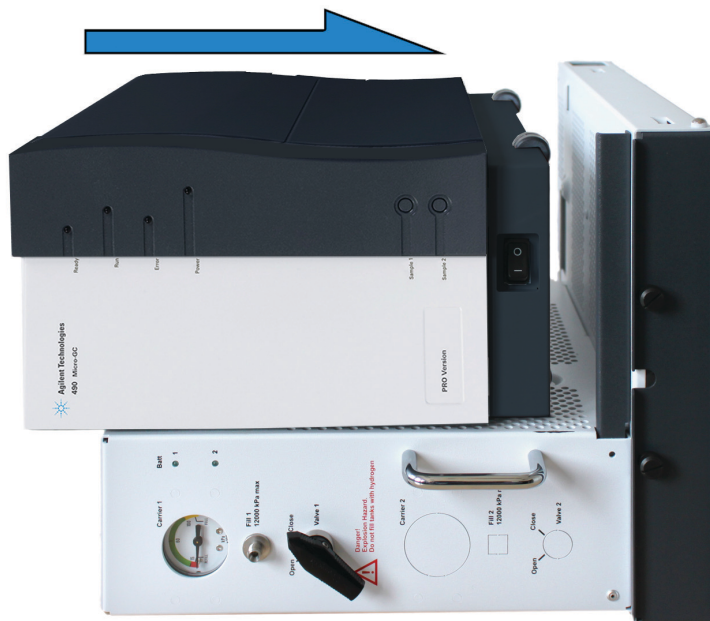


Figure 8 Placing the Micro GC

- 5 Screw the Micro GC and the interior together with the two Torx-T20 screws.



Figure 9 Location of screws

- 6 Set the interior horizontal.
- 7 At the back of the interior, attach the power connector.



Figure 10 Squeeze the connector then push in

- 8 Using the included tubing (situated in the battery compartment), connect the **Carrier in** (at the Micro GC) with **Carrier 1** (on the Field Case interior).

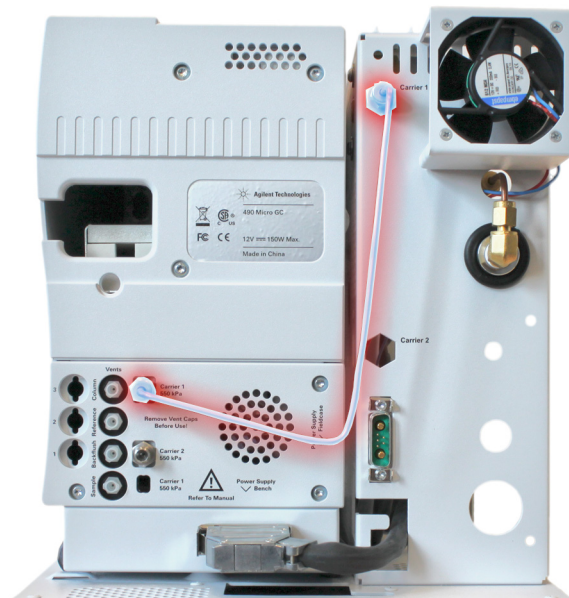


Figure 11 Tubing location

- 9 Connect the communication cable inside the Micro GC. See the Micro GC user manual.

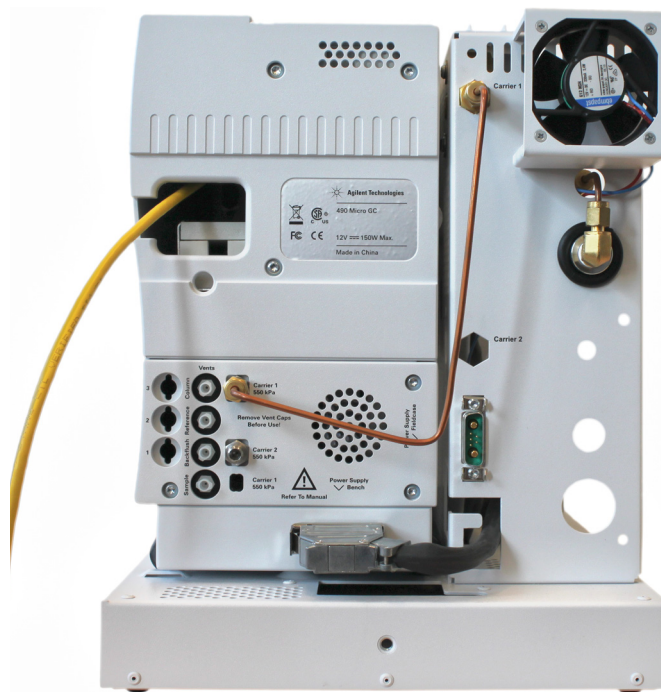


Figure 12 Communication cable connected

- 10 Slide the interior back into the Field Case and lock it with the (Un)lock screw.

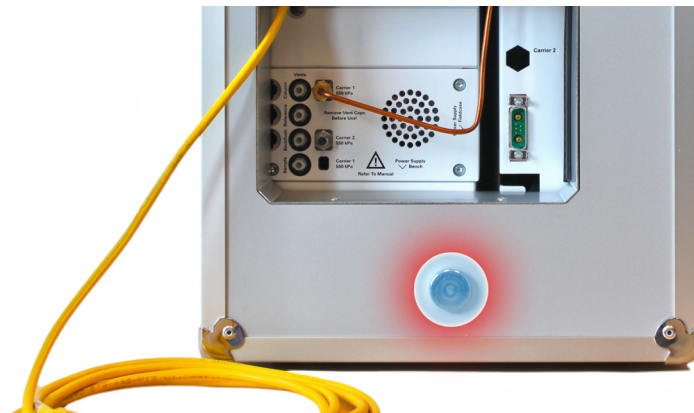


Figure 13 Location of the lock screw

- 11 Connect the Micro GC to the sample source. For details, see the Micro GC user manual.
- 12 At the front of the Field Case, open the battery compartment by unscrewing the nuts.



Figure 14 Unscrewing the nuts

NOTE

The Field Case may only be used with the supplied battery(s) (CP740328) or the power supply (CP742999).

- 13 Slide the battery(s) in the compartment and connect the battery(s) to the system (in case of one battery, connect the cable labeled **battery 1**). The fan at the back and the two LEDs at the front will be activated for a few seconds indicating the electronics are testing and are ready. Ensure the cables are correctly positioned in the cable guides to prevent damage, then close the battery compartment door.



Figure 15 Install the battery

NOTE

It is advisable to charge the battery(s) before operation using the external charger (CP740427).

- 14 Place the Field Case in such a way that both the mains appliance inlet or adapter and the battery supply cables are easy to reach for the operator. These connections must be disconnected in case of emergency.
- 15 Connect the Workstation PC to the Micro GC.
- 16 Turn the carrier gas on using the **Valve 1(2)** Carrier gas open/close valve.
- 17 Switch on the Micro GC.
- 18 After a few minutes, the system should be ready for use (see Micro GC user manual).

CAUTION

Always leave the Micro GC Field Case door open, using the door lock.

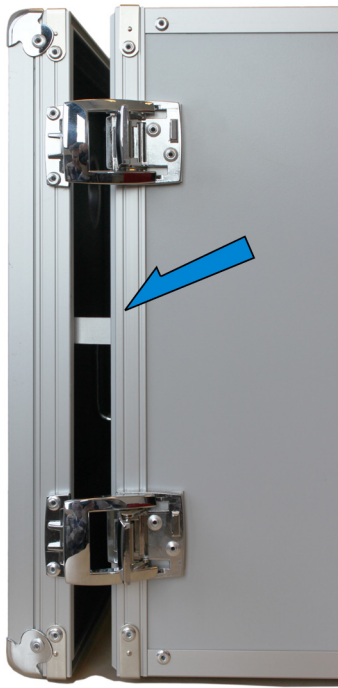


Figure 16 The door lock

Automatic Battery Selection

During startup, the system will check how many batteries are available and choose the one which is most charged. Only one battery at a time (when two batteries are present) will be used to power the Micro GC.

If the battery voltage becomes lower than 9.1 Volt, the system will (in case of two batteries) automatically switch to the second battery.

Charging the batteries is only possible outside the Field Case using the external charger (CP740427). See the Battery Pack manual.

Battery Status LED

The two green LEDs in the front of the Field Case indicate the battery status.

Status	Description
ON	System working
Blinking	System working but battery needs to be recharged
OFF	Micro GC is OFF

Internal Buzzer

The buzzer is located in the Field Case and gives information about the battery status.

Table 2 Buzzer action

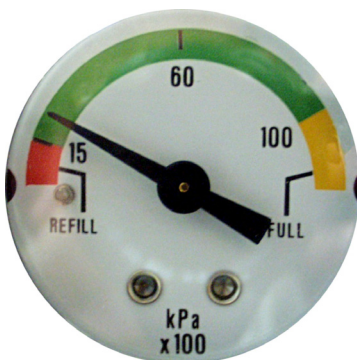
Duration	Action
Interval beep (10 seconds)	Battery voltage below 10.5 Volt; replace or recharge battery

Carrier Gas Refill Instructions

Carrier gas refill assembly

Your Micro GC Field Case is equipped with a refillable, high pressure carrier supply tank(s) which has been approved to 12,000 kPa, and has an internal volume of 300 cc.

When the instrument is in use, the pressure should not drop in the red area since the Micro GC needs at least 550 ± 10 kPa (80 ± 2 psi) to work properly.



Refilling is done by means of a carrier gas refill assembly.

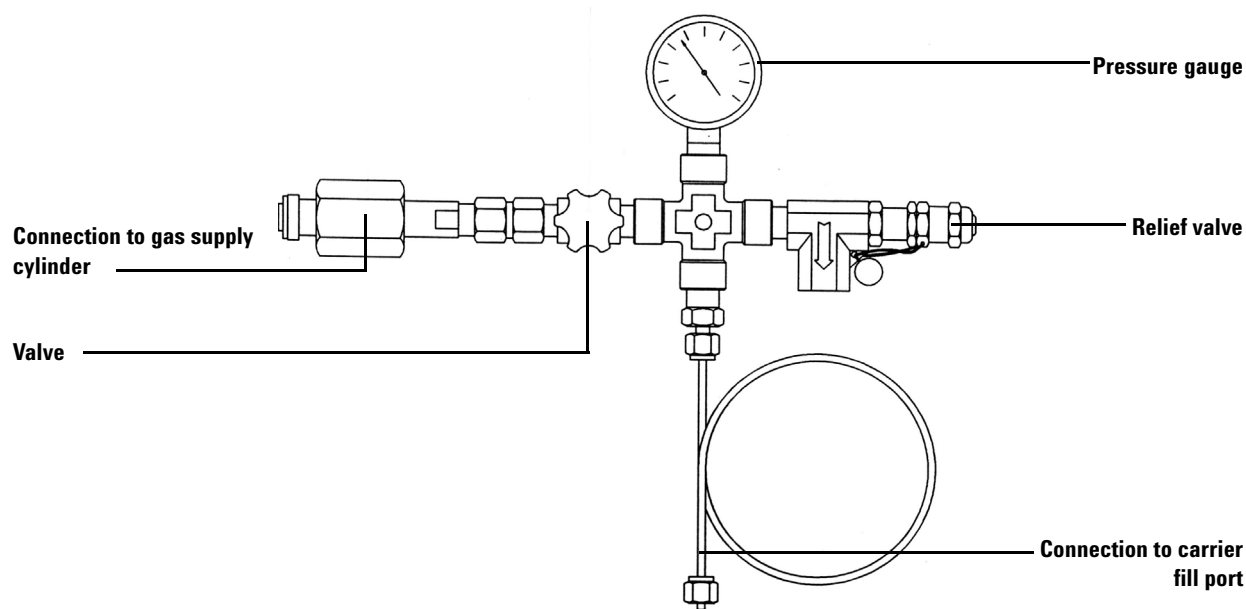


Figure 17 Carrier gas refill assembly

This special tool is connected directly to the valve on the gas supply cylinder. Because this connection differs from country to country, Agilent Technologies, Inc. offers a range of Refill Assembly's to meet all major standards. If the connector of this device, despite a careful choice, does not match your supply unit, ask your local gas supplier for the right part. It should have 1/4 inch NPT male thread at one end. Exchanging is easy.

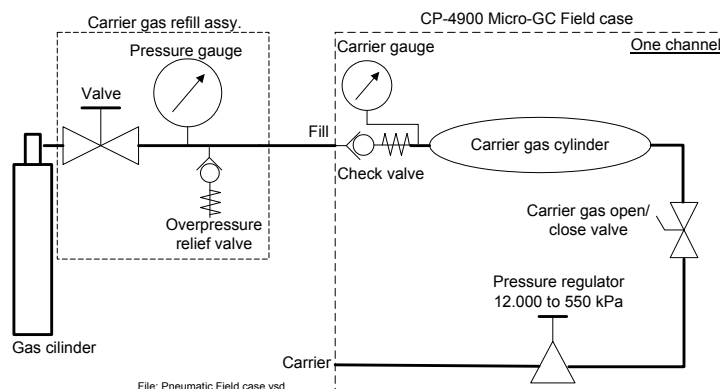


Figure 18 Pneumatic Field Case

WARNING

High-pressure gas stores an incredible amount of energy and is dangerous in its own right even if the gas is inert like He or N₂. Therefore, filling your tank can be **EXTREMELY HAZARDOUS**. The tank can be filled safely using the following steps.

Refill procedure

- 1 Install the Refill Assembly onto the gas supply cylinder.
- 2 Check and make sure that the valve on the Refill Assembly is closed.
- 3 At the front of the Field Case, remove the 1/8 inch nut at **Fill 1(2)**.
- 4 Connect the 1/8 inch tube from the Refill Assembly to the **Fill 1(2)** port on the front panel. Finger-tighten and loosen the nut 1/4 turn.
- 5 First open the valve on the gas supply cylinder, then slightly open the valve on the Refill Assembly just a little and listen for gas leaking through the nut. (This purges the Refill Assembly so that no air enters the gas carrier gas cylinder).

- 6 When the Refill Assembly has been sufficiently purged, tighten the **Fill 1(2)** nut.
- 7 While watching the pressure gauge on the Refill Assembly, slightly open the refill valve. When the pressure on the gauge reads 10,000 to 12,000 kPa, close both valves on the Refill Assembly and the gas supply cylinder.

It is possible that the relief valve may have started to blow, this is normal. The relief valve is meant to limit the pressure in the carrier gas cylinder.

- 8 Disconnect the 1/8 inch tube from **Fill 1(2)**. Now escaping gas comes from the Refill Assembly letting off pressure. Cap off the **Fill 1(2)** port.

NOTE

The carrier gas cylinder can only be filled to the maximum when the pressure in the gas supply cylinder has sufficient pressure to allow that. If the gas supply pressure has dropped below the set point of the relief valve, the gauge on the refill assembly will indicate this pressure when both valves are open.

Additional refill information

In case the carrier supply tank depressurized completely and is possibly contaminated with air:

- 1 Install the Refill Assembly onto the gas supply cylinder.
- 2 Check and ensure that the valve on the Refill Assembly is closed.
- 3 Close **Valve 1(2)**.
- 4 At the back of the Field Case, disconnect the tubing connecting the **Carrier 1(2)** and **Carrier gas 1(2)**.
- 5 At the front of the Field Case, remove the 1/8 inch nut at **Fill 1(2)**.
- 6 Connect the 1/8 inch tube from the Refill Assembly to **Fill 1(2)** port on the front panel. Finger-tighten and loosen the nut 1/4 turn.
- 7 First open the valve on the gas supply cylinder, then slightly open valve on the Refill Assembly just a little and listen for gas leaking through the nut. (This purges the Refill Assembly so that no air enters the carrier gas cylinder).
- 8 When the Refill Assembly has been sufficiently purged, tighten the **Fill 1(2)** nut.
- 9 Fill the carrier gas cylinder to about 1,500 kPa.

- 10 Turn the **Valve 1(2)** to **Open**, relieve pressure in the carrier gas cylinder, and close the valve.
- 11 Purge this way at least twice, do not close the valve the last time, but reconnect the removed tubing.
- 12 While watching the pressure gauge on the Refill Assembly, slightly open the refill valve. When the pressure on the gauge reads 10,000 to 12,000 kPa, close both valves on the Refill Assembly and the gas supply cylinder.

It is possible that the relief valve may have started to blow, this is normal. The relief valve is meant to limit the pressure in the carrier gas cylinder.

- 13 Disconnect the 1/8 inch tube from **Fill 1(2)**. Now escaping gas comes from the Refill Assembly letting off pressure. Cap off the **Fill 1(2)** port.

Shipping

If the Micro GC Field Case must be sent back to the factory, it is very important to follow these shipping instructions:

WARNING

Relieve the pressure completely from the internal carrier gas cylinder(s) according to transportation rules.

CAUTION

Avoid shipping the battery connected with the instrument.

- Always include the power supply.
- Include, if used, the sample inlet filter.
- Disconnect the batteries.

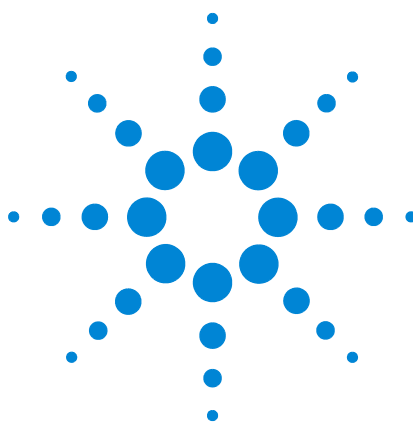
Cleaning

To keep the Micro GC Field Case surface clean:

- Clean only when the Micro GC Field Case is disconnected from the charger, power supply, and battery packs.
- Use a soft (not hard or abrasive) brush to carefully brush away all dust and dirt.
- Use a soft, clean cloth, dampened with mild detergent to clean the outside of the case.
- Never clean the inside of the case!
- Be careful not to get water on the electronics components.
- Do not use compressed air to clean the case.

Disposal

Disposal must be carried out in accordance with all (environmental) regulations applicable in your country.



3 Battery Pack and Charger

Battery Pack 30
Battery Charger 37



Battery Pack

Introduction

This Battery Pack (CP740328), [Figure 19](#), may only be charged with the Charger (CP740427), see [Figure 23](#) on page 37. It may only be used to power the Field Case. This Battery Pack is tailored to meet the power needs of the Micro GC.



Figure 19 Battery Pack (p/n CP740328)

General precautions

WARNING

It is the responsibility of the Customer to inform Agilent Technologies Customer Support Representatives if this battery has been used in combination with the Micro GC for the analysis of hazardous samples prior to any instrument service being performed or when an instrument is being returned to the Agilent Service Center for repair.

WARNING

This battery (p/n CP740328) is designed for use in combination with the Micro GC Field Case. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Battery location

The Ni-MH rechargeable battery(s) is located in the front of the Field Case in a specially designed compartment.

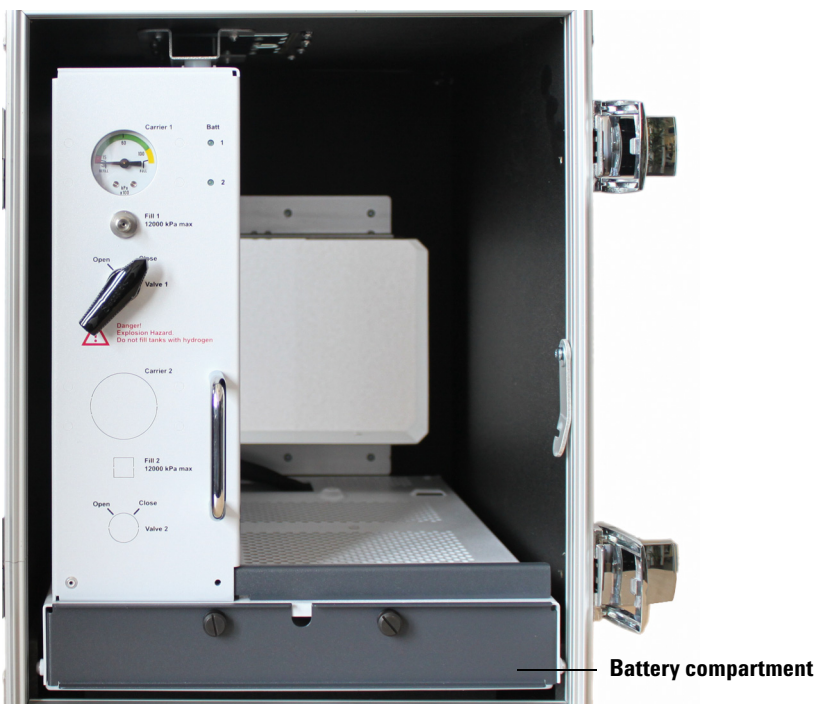


Figure 20 The battery compartment

Open the compartment by squeezing the two clips together.



Figure 21 Unscrew the nuts

The battery(s) will be visible.



Figure 22 Slide out the battery

The battery(s) can be removed by unplugging the connector and slightly pulling the battery(s) out of the compartment.

Battery handling

- Never disassemble the battery as the electrolyte inside is strong alkaline and can damage skin and clothes.
- Never attempt to short-circuit the battery. Doing so can damage the product and generated heat can cause burns.
- Do not dispose of the battery in a fire. Disposing of the battery in fire can cause the battery to rupture. Also avoid placing batteries in water as this causes batteries to cease to function.
- Never solder anything directly to the battery. This can destroy the safety features of the battery by damaging the safety vent inside the cap.
- Do not use the battery in an appliance or for purposes for which it was not intended.
- Do not place containers with flammable liquids near the battery. Spilling liquid over hot parts may cause fire.
- Never use alcohol or thinners to clean the Battery Pack. These chemicals can damage the case.

Charging

In order to take full advantage of the properties of the Ni-MH Battery Pack and to prevent problems due to improper use, note the following points when charging.

WARNING

Charge the battery within an ambient temperature range of 0 °C to 40 °C.

WARNING

Never attempt reverse charging. Charging with polarity reversed can cause a gas pressure inside the batter to rise, which can activate the safety vent, lead to alkaline electrolyte leakage, rapid deterioration ini battery performance, battery swelling, or battery rupture.

- Batteries should always be charged prior to use. Be sure to charge correctly, and use only the battery charger that has been supplied by Agilent Technologies, Inc.
- Ambient temperature affects charging efficiency. As charging efficiency is best within a temperature range of 10 °C to 40 °C, when charging, be sure the Battery Pack and charger are within this temperature range.
- At temperatures below 0 °C the gas absorption reaction is not adequate, causing gas pressure inside the battery to rise, which can activate the safety vent and lead to leakage of alkaline gas and deterioration in performance and battery leakage.
- Do not parallel charge batteries.
- Avoid overcharging. Repeated overcharging can lead to deterioration in performance. Overcharging means charging a battery when it is already fully charged.
- To avoid overcharging, use a timer to measure the total charge time.
- When charging for the first time after long-term storage, deactivation of reactants may lead to increased battery voltage and decreased battery capacity. Restore such batteries to original performance by repeating several cycles of charging and discharging.
- When recharging, place the battery in a suitable location with sufficient ventilation. Space around the battery must be sufficient to enable cooling.

- Never reverse charge or overcharge with high currents. Doing so causes rapid gas generation and increased gas pressure, thus causing batteries to swell or rupture.
- Never insert the battery with the positive and negative poles reversed as this can cause the battery to swell or rupture.
- Do not charge the battery if there is a possibility of any kind of electrical damage. Instead, disconnect the battery power cords and contact your Agilent Technologies office.

Discharging

CAUTION

Since over-discharging (deep discharge) damages the battery characteristics do not leave the battery connected to the instrument for long periods of time.

Storage

CAUTION

When storing batteries for more than 1 year, charge at least once per year to prevent leakage and deterioration in performance due to self-discharging.

- Store the battery in a dry location with low humidity, no corrosive gases, and at a temperature range of -10 °C to +48 °C.
- Storing the battery in a location where humidity is extremely high or where temperatures fall below -10 °C or above +48 °C can lead to rusting of metallic parts and battery leakage due to expansion or contraction of parts composed of organic materials.
- Long-term storage can accelerate battery self-discharging and lead to the deactivation of reactants; locations where the temperature ranges between +10 °C and +30 °C are suitable for long-term storage.
- When charging for the first time after long-term storage, deactivation of reactants may lead to increased battery voltage and decreased battery capacity. Restore such batteries to their original performance by repeating several cycles of charging and discharging.

Battery service life

Batteries used under proper conditions of charging and discharging can be used 500 cycles or more.

Batteries are chemical products involving internal chemical reactions. Performance deteriorates not only with use but also during prolonged storage.

Normally, a battery will last two years (or 500 cycles) if used under proper conditions and not overcharged or overdischarged.

However, failure to satisfy conditions concerning charging, temperature, and other factors during actual use can lead to shortened life (or cycle life), damage to products, and deterioration in performance due to leakage and shortened service life.

Significantly reduced service time in spite of proper charging means that the life of the battery has been exceeded. At the end of service life, an increase in internal resistance or an internal short-circuit failure may occur.

Cleaning

To keep the Battery Pack surface clean:

- Clean only when the Battery Pack is disconnected from the charger.
- Use a soft (not hard or abrasive) brush to carefully brush away all dust and dirt.
- If the outer case is dirty (never clean the inside!), clean it with a soft, clean cloth dampened with mild detergent.
- Never use alcohol or thinners to clean the Battery Pack, these chemicals can damage the case.
- Be careful not to get water on the electronics components.
- Do not use compressed air to clean the battery pack.

Disposal

When the Battery Pack or parts of it has reached the end of its useful life, disposal must be carried out in accordance with all (environment) regulations applicable in your country.

Technical specifications

Table 3 Battery Pack technical specifications

Technology	Ni-MH (Nickel Metal Hydride)
Number of cells	10
Cell-orientation	1 × 10 in row
Nominal output voltage	12 Vdc
Capacity	10000 mAh
Protection	Built-in thermo fuse resettable (75 °C) and current (14 A)
Output cable	Two wires, UL1015 approved
Output connector	2-circuit JST connector Pin 1 (red) +12 V Pin 2 (black) ground
Operation temperature	0 °C to +48 °C
Charge temperature	0 °C to +40 °C
Storage temperature	-10 °C to +48 °C
Humidity	0 % to 90 % (non-condensing)
Safety	UL2054, UL1015 (cabling) and CE
Size	348 × 71 × 37 mm
Weight	2,000 grams

Battery Charger

Introduction

This Charger (p/n CP740427), [Figure 23](#), must only be used in combination with the Micro GC Battery Pack (CP740328), see [Figure 19](#) on page 30. This Charger is tailored to meet the power needs of the Battery Pack.



Figure 23 Battery Charger (p/n CP740427)

Features

- Micro controller controlled charging
- Short circuit detection and electronic protection against reversed battery
- Battery condition at the beginning of the charge is of no importance for the Battery Packs
- Safety stages like voltage gradient supervision and -dV switch off as well as a safety timer are integrated

Charger status

LED	Status
Yellow	Battery not connected [*]
Yellow	Battery initialization and analysis [†]
Orange	Fast charge
Green with intermittent Yellow flash	Top-off charge
Green	Ready to use and trickle charge
Alternating Orange-Green	Error

^{*} There is power to the charging unit, but the battery is not connected.

[†] After the battery is connected to the charging unit.

Operation

CAUTION

Keep this charger in a dry place (indoor use only). The charger should be disconnected from the power supply when not in use. Do not plug in the charger if there is a damaged cabinet or power plug.

- 1 The charger will start automatically as soon as a Battery Pack is installed and the charger is plugged into the power supply. (The LED is yellow.)
- 2 The charger starts the fast charging procedure (LED is orange).
- 3 After the fast charging procedure, the charger switches automatically over to top-off charge (LED is green with a yellow flash).
- 4 After the top-off charging procedure, the charger switches automatically over to trickle charge (LED is green).
- 5 Trickle charge will last until either the battery or the power supply cable is disconnected.

Cleaning

To keep the charger surface clean:

- Remove the power cable.
- Use a soft brush (not hard or abrasive) to carefully brush away all dust and dirt.

- If the outer case is dirty (never clean the inside!), clean it with a soft, clean cloth dampened with mild detergent.
- Never use alcohol or thinners to clean the Battery Charger, these chemicals can damage the case.
- Be careful not to get water on the electronics components.
- Do not use compressed air to clean the Battery Charger.

Disposal instructions

Disposal must be carried out in accordance with all environment regulations applicable in your country.

Technical specifications

Table 4 Battery Charger technical specifications

Model	Mascot MC-2215
Main voltage	90 to 264 Vac
Frequency	50 to 60 Hz
Power consumption	45 W
Output voltage	6.2 - 18 Vdc
Maximum charge current	1.8 A
Output cable	Two wires, 1.7 meter
Output connector	2-circuit Mate-N-lok connector Pin 1 (red) +12 V Pin 2 (black) ground
Humidity	0 % to 90 % (non-condensing)
Conformations	2006/95/EC (low voltage) 2004/108/EC (EMC) 93/42/EEC (Medical)
Size	107 × 67 × 36.5 mm
Weight	250 grams

3 Battery Pack and Charger



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