



GP-200 INTELLIGENT GAS PURIFIER

The perfect companion for trace gas analyzers

It will purify noble gases down to below 10 ppb level (<1ppb version available) fed from standard UHP grade gas. This purifier is used to provide premium quality carrier gas for all types of Gas Chromatographs. No need for multiple traps mounted in series. Nitrogen version available.

• APPLICATIONS

- Carrier gas purifier
- Zero gas generator for calibration of on-line analyzers
- Reference gas generator for TCD analyzers
- Mass spectrometer
- Perfect for all kinds of detectors: plasma, HID, DID, FID, PID, TCD, ECD, etc.

• BENEFITS

- Lower background noise in chromatographic applications
- Increases sensitivity in low impurity chromatographic applications
- Protects some columns from moisture and oxygen
- High quality gas generated at very low cost
- Improves calibration accuracy for zero reference
- No H₂ released (two stages of purification)
- Twice gettering material compare to competitive units

• INTELLIGENT

- Estimate end of life indicator
- Temperature stability indicator
- Warn against over temperature caused by pollution
- Communicates with Contrôle Analytique analyzers
- Calculates total flow passed through it when connected to Contrôle Analytique analyzers
- PID temperature control loop for ultra stable bed operation

ANALYTICAL SYSTEMS

1076 JOHNSON STREET, THETFORD MINES, QUEBEC CANADA G6G 5W6
PHONE: (418) 334-0990 • FAX: (418) 334-0660 E-MAIL: info@cai-ca.com • WEB SITE: www.cai-ca.com

GP-200 INTELLIGENT GAS PURIFIER

Product Description

The Contrôle Analytique GP-200 Intelligent Gas Purifier removes H_2O , O_2 , CO , CO_2 , H_2 , THC , CH_4 and H_2 to sub ppb levels in the heated mode and H_2O , O_2 , CO , CO_2 and H_2 at room temperature operation from all inert gases. When operated at room temperature, it also could be used to purify Nitrogen.

The GP-200 Intelligent Gas Purifier is designed to purify noble gases. These are Helium, Neon, Argon, Krypton and Zeon. It can be used to supply carrier gas to gas chromatograms or generate zero gas for various gas analyzers.

The purifier process is done in 2 steps. One at elevated temperature and the other at ambient temperature.

The heated vessel will effectively remove the specified impurities. However there is some possibility of H_2 being released by the first step of purification under some conditions. There are 2 sources of H_2 , one present in the gas to be purified and the other coming from the dissociation of Hydrocarbons. Since the H_2 is not optimally chemisorbed at elevated temperature, the second purification process will absorb any H_2 coming out of the first purification process.

Some other purifiers will overcome the H_2 release problem by cooling a part of the gettering alloy. However experience has demonstrated that it is not a 100% safe solution. So we prefer to use a two steps process instead of trying to do all the job in one.

End of life estimation

With all gas purifiers, whatever the type it is, there is always a question: when does the end of life occur? The safest way to detect it would be to monitor the impurities coming out of it, but this is too expensive for analytical purifiers.

While a purifier uses a metal alloy, it could fail to remove CH_4 and N_2 . However, it may still work fine for the other impurities. Normally, all users are blind in regard of the status of a small size analytical purifier. With the intelligent GP-200 purifier, there are some partial solutions to these problems. Here how it works.

1) On regular use, i.e. proper pressure regulator purging when replacing cylinder (no pollution occurs) and purifying 5N gas, our purifier will last at least 2 years. Knowing the fact that 5N gas has maximum impurities of 10 ppm and knowing the total flow through the purifier, an estimate of total impurities chemically absorbed can be evaluated. So, a warning will be issued, using indicating LEDs, before the end of life. User can then take proper actions and avoid equipment downtime.

2) If the system detects a sudden increase in getter bed temperature, it means that suddenly the bed was overloaded with some impurities, causing exothermic reaction. It could be caused by ambient air diffusion due to leak or bad purging procedure. In this case, a warning is issued, using indicating LEDs, and the user knows that the purifier could be no more inside specifications. So, proper actions can be taken based on how it is critical for a particular application.

NOTE: The purifier can work without a Contrôle Analytique analyzer. The connection between the purifier and the analyzer is only a feature that enables the user to see the actual estimated life of the purifier.



• Outlet

- Purified gas with less than 10 ppb of impurities
- Optionally less than 1 ppb
- Traceability to NIST reference

• Inlet

- Noble gas with H₂O, O₂, CO, CO₂, H₂, THC, CH₄ and H₂ impurities
- The noble gas could be Helium, Neon, Argon, Krypton or Zeon

• LEDs meaning

- Red and green LEDs are ON: There is no error.
- Red led is ON and green LED is blinking: Purifier's end of life approaches.
- Red LED is blinking and green LED is OFF: Purifier must be changed.
- Yellow LED is OFF: Purifier is not able to reach its temperature set point.
- Yellow LED is blinking: Purifier is heating.
- Yellow LED is ON. Purifier's temperature is within 5 °C from the set point.

• NOMINAL SPECIFICATIONS

GASES PURIFIED:	Ar/He/Ne/Xe/Kr. Nitrogen version available.
IMPURITIES REMOVED (HEATED):	H ₂ O, O ₂ , CO, CO ₂ , N ₂ , THC, H ₂ , CH ₄
IMPURITIES REMOVED (ROOM TEMPERATURE):	H ₂ O, O ₂ , CO, CO ₂ , H ₂
IMPURITY LEVELS:	<10 ppb (optionally less than 1 ppb)
NOMINAL FLOW:	200 cc/min
FITTINGS:	1/8" Compression fitting or 1/8" VCR (1/8" VCR is always shipped with the "L" option)
ELECTRICAL SUPPLY:	120 Vac or 220 Vac, maximum 40 watts.

Part Numbering

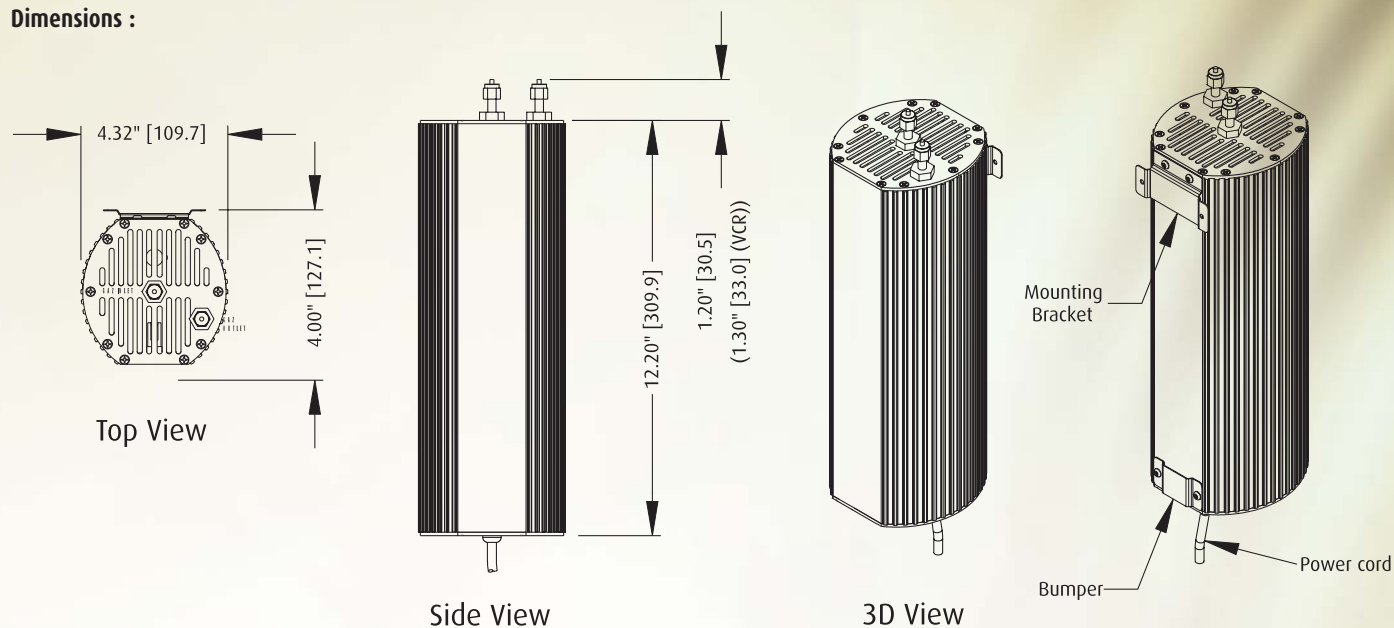
GP-200-	X	-	XXX	-	X - X
None:	Noble gases		Operating voltage		Options
N:	Nitrogen version				- S: Shield option
					- C: NIST traceable
					- L: Less than 1 ppb

example: GP-200-120-C

Noble gas purifier operating at 120 volts
and shipped with certificate of traceability to NIST reference.

The GP-200 series of gas purifier is manufactured from stainless steel.

Dimensions :



NOTE: Specifications may change without notice.

GP-200 INTELLIGENT GAS PURIFIER

Product Description

The Contrôle Analytique GP-200 Intelligent Gas Purifier removes H₂O, O₂, CO, CO₂, H₂, THC, CH₄ and H₂ to sub ppb levels in the heated mode and H₂O, O₂, CO, CO₂ and H₂ at room temperature operation from all inert gases. When operated at room temperature, it also could be used to purify Nitrogen.

The GP-200 Intelligent Gas Purifier is designed to purify noble gases. These are Helium, Neon, Argon, Krypton and Zeon. It can be used to supply carrier gas to gas chromatograms or generate zero gas for various gas analyzers.

The purifier process is done in 2 steps. One at elevated temperature and the other at ambient temperature.

The heated vessel will effectively removes the specified impurities. However there is some possibilities of H₂ being released by the first step of purification under some conditions. There are 2 sources of H₂, one present in the gas to be purified and the other coming from the dissociation of Hydrocarbons. Since the H₂ is not optimally chemisorbed at elevated temperature, the second purification process will absorb any H₂ coming out of the first purification process.

Some other purifiers will overcome the H₂ release problem by cooling a part of the gettering alloy. However experience has demonstrated that it is not a 100% safe solution. So we prefer to use a two steps process instead of trying to do all the job in one.

End of life estimation

With all gas purifiers, whatever the type it is, there is always a question: when does the end of life occur? The safest way to detect it would be to monitor the impurities coming out of it, but this is too expensive for analytical purifiers.

While a purifier uses a metal alloy, it could fail to remove CH₄ and N₂. However, it may still working fine for the other impurities. Normally, all users are blind in regard of the status of a small size analytical purifier. With the intelligent GP-200 purifier, there are some partial solutions to these problems. Here how it works.

1) On regular use, i.e. proper pressure regulator purging when replacing cylinder (no pollution occurs) and purifying 5N gas, our purifier will last at least 2 years. Knowing the fact that 5N gas has maximum impurities of 10 ppm and knowing the total flow through the purifier, an estimate of total impurities chemically absorbed can be evaluated. So, a warning will be issued, using indicating LEDs, before the end of life. User can then take proper actions and avoid equipment downtime.

2) If the system detects a sudden increase in getter bed temperature, it means that suddenly the bed was overloaded with some impurities, causing exothermic reaction. It could be caused by ambient air diffusion due to leak or bad purging procedure. In this case, a warning is issued, using indicating LEDs, and the user knows that the purifier could be no more inside specifications. So, proper actions can be taken based on how it is critical for a particular application.

NOTE: The purifier can work without a Contrôle Analytique analyzer. The connection between the purifier and the analyzer is only a feature that enables the user to see the actual estimated life of the purifier.



Outlet

- Purified gas with less then 10 ppb of impurities
- Optionally less than 1 ppb
- Traceability to NIST reference

Inlet

- Noble gas with H₂O, O₂, CO, CO₂, H₂, THC, CH₄ and H₂ impurities
- The noble gas could be Helium, Neon, Argon, Krypton or Zeon

LEDs meaning

- Red and green LEDs are ON: There is no error.
- Red led is ON and green LED is blinking: Purifier's end of life approaches.
- Red LED is blinking and green LED is OFF: Purifier must be changed.
- Yellow LED is OFF: Purifier is not able to reach its temperature set point.
- Yellow LED is blinking: Purifier is heating.
- Yellow LED is ON. Purifier's temperature is within 5°C from the set point.