

Natural Gas Network Survey and Gas Leak Detection



Inspectra® LASER

Laser Technology
applied to Methane Detection

-  1 ppm sensitivity
-  Instant response time
-  Total selectivity to methane
-  Measurement range extending from 1 ppm to 100 % volume gas

Using laser spectroscopy technology, the INSPECTRA® LASER equipment developed by GAZOMAT™ is a high-performance methane detector. This device meets ATEX standards for use in explosive areas and makes it possible to detect methane leaks and determine their location with precision. It is a truly efficient tool for gas professionals.

Total selectivity to methane

The measuring chamber of the INSPECTRA® LASER analyzer is fitted with a laser diode adjusted to the absorption wavelength specific to methane.

In the presence of methane molecules, the laser beam is partially absorbed.

Thus, only methane is detected. The device is insensitive to other hydrocarbon gases, chemicals, water vapours and pollution that may be present in the atmosphere.

Sensitivity of 1 ppm

The pass length of the Herriot multipass cell enables the detector to reach sensitivity on the order of the ppm.

Unique measuring precision

- 2 measurement scales:
 - PPM scale from 0 ppm to 10,000 ppm
 - GAS scale: from 0 % to 100 % volume gas
- Simultaneous display of double measurement range
- Very quick response time
- Two sampling speeds: 35 l/hour and 70 l/hour.



Exists in two versions : ATEX and non ATEX
Non ATEX version shown above.

INSPECTRA® LASER device available in 3 versions

- Non-ATEX version: measurement range from 0 ppm to 10,000 ppm
- Non-ATEX version: measurement range from 0 ppm to 100% Vol. gas
- ATEX version: measurement range from 0 ppm to 100% Vol. gas

Easy to use

- Automatic self-test at start-up
- Wide backlit LCD screen
- Visual and audio indicators (battery charge level, pump status, alarm on/off, risk of explosion, etc.)
- Access to standard and advanced functions with the 5-key keypad and a scrolling menu
- Software dialogue window
- Four measurement ranges with Autoscale function
- Choice of measurement modes: absolute concentration or relative concentration (running mean)
- Long autonomy: 8 hours at 20° C (ATEX version)

Scope of application

- ATEX Version : for use in explosive atmospheres (both inside and outside of buildings), suitable for any application requiring the measurement of natural gas concentrations (methane only) such as :
 - Survey of natural gas network (methane only)
 - Detection and localization of gas leaks (methane only)
 - Monitoring of natural gas compression plants
 - Measurements in laboratories...
- Non ATEX version : for use outside of buildings only and exclusively limited to NON ATEX areas presenting no risk of permanent presence of explosive gases.
- Applications requiring natural gas concentration measurements (methane only).
 - Monitoring of natural emissions of methane (geology, volcanology...)



Accessories and add-ons

- 1) A long sampling rod with its filter fitted handle
- 2) A telescopic sampling rod with suction-cup
- 3) Water-repellent and dust-proof filters (not shown)
- 4) A 100-240 VAC - 50-60 Hz charger
- 5) A 12 VDC charger (optional)
- 6) A rechargeable battery pack (integrated to the device)
- 7) A Gas Check kit (optional) comprising a flow regulator and a 34 liter canister containing a 10 ppm methane concentration
- 8) A reinforced storage case for the INSPECTRA® LASER analyzer and its accessories.



Trolley

This accessory fits on by simply connecting the hose to the detector, for taking samples directly from the ground surface with no risk of loss or dilution in the air.



GPS Tablet system for total traceability of on-foot inspections

This device enables the operator to keep a computerized record of his detection operations:

- Geographical positioning on a map of detected leak indications
- Recording of concentration measurements
- The operator may insert comments during the on-foot inspection
- Inspection reports are generated (location, date and time, leak numbers, concentrations, weather conditions and operator comments).



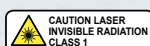
GPS Tablet system equipment

- A micro-antenna worn on the operator's shoulder
- A GPS unit with wireless Bluetooth® communication and USB cable connection
- An ultra-heavy duty touch-screen tablet from Panasonic, the brand selected by GAZOMAT™
- GAZOMAT™'s NGS Multilanguage software, running on Microsoft® Windows® 10.

TECHNICAL SPECIFICATIONS

Inspectra[®] LASER

Measurement principle	Laser spectroscopy
Measurement scales	- Scale 1: 0 ppm - 10,000 ppm - Scale 2: 0% to 100% Volume gas
Detection threshold	1 ppm
3 different versions	- Non-ATEX version: measurement range from 0 ppm to 10,000 ppm - Non-ATEX version: measurement range from 0 ppm to 100% Vol. gas - ATEX version: measurement range from 0 ppm to 100% Vol. gas
Response time	- T90 standard: 4.5 seconds - T10 standard: 2 seconds - With suction rod T90: 6 seconds - With suction rod T10: <3.5 seconds
Display	- Liquid crystal display with digits, icons and backlighting – 3 areas: - o concentration measurements (0 to 10,000 ppm and 0.0% to 100.0% volume gas) - o status indicators - o dialogue window - Height of measurement character for PPM scale and GAS scale: 13 mm
Keypad	5 direct-control keys - Advanced function control with protected-access scrolling menu
Power supply ATEX version	- ATEX certified Ni-CD rechargeable battery pack: 3 x 1.2V – 4Ah 100-240 VAC / 50-60Hz battery charger for ATEX battery pack - Charging time up to 14 hours at 0.4Ah
Power supply non-ATEX version	- Non-ATEX Ni-MH rechargeable battery pack: 3 x 1.2V – 10Ah 100-240 VAC / 50-60Hz battery charger for non-ATEX battery pack - Charging time up to 10 hours at 1Ah
Autonomy	- Device operated with no accessories at 20 °C with pump on speed 2 and backlighting off: - o ATEX version: 8 hours - o Non-ATEX version: 20 hours - Device operated with Bluetooth[®] communication kit at 20 °C with pump on speed 2 and backlighting off: - o ATEX version: 6 hours - o Non-ATEX version: 16 hours - Battery life reduced by 20% at temperatures below 0 °C and above 35 °C.
Output of the electric pump	35 l/h (on speed 1) et 70 l/h (on speed 2)
Alarms	- they activate the visual (LED and LCD displays) and audio warnings - o Methane CH₄ concentration threshold - o Explosion risk due to methane CH₄ concentration - o Pump: pump stopped, pump error
Status indicators	Battery charge level, pump status (2 speeds)
Gas connection	- Quick-connect inlet coupling with locking mechanism: suction rod on right side - Quick-connect gas outlet coupling
Electrical connections	- Male power plug 2.1 mm : for battery charger - Communication with a computer via a specialised communication link
Housing	- Housing material: polyamide reinforced with fibre glass and carbon - Material of front side: anodized aluminum
Dimensions	Length 263 mm x Width 113 mm x Height 141 mm (10.3 x 4.4 x 5.5 inches)
Weight	2.5 kg (5.5 lbs) with batteries and carry strap
Conditions of use	- Humidity: from 5 % to 80 % relative humidity - Temperature: from -15 °C to +40 °C - Pressure: atmospheric pressure 1013 mbar (± 100 mbar)
Storage conditions (excluding batteries)	- Humidity: < 90 % relative humidity - Temperature: -20 °C to +60 °C
Protection index	IP 54
Certifications	- CE marking 94/9/CE directive dated March 23, 1994 2004/108/CE directive dated May 21, 1989 : electromagnetic compatibility - European standards of use in explosive atmospheres: - o EN 60079-0 from 2006 - o EN 60079-11 from 2007 - II2G Ex ib IIB T4 - INERIS N° 05ATEX0051
Certifications for the ATEX 1 ppm to 100 % volume gas version	



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After-sales service

GAZOMAT provides all customers with comprehensive product assistance and maintenance through its global service teams.

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