



A company of T.D. Williamson, Inc.

## Natural gas network survey and gas leak detection



# Inspectra<sup>®</sup> 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 short response time
- Two sampling speeds: 35 l/hour and 70 l/hour.



Exists in two versions : ATEX and non ATEX  
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

#### 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
  - Monitoring of methanation plants
  - Monitoring of landfills
  - Measurements in laboratories, etc.
- 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).





### 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.



### GAZOMAT™ Test Bench

- Automatically tests the INSPECTRA® Laser device with different concentrations of methane
- A test report and a test certificate are generated
- Provided with reference gas bottles, a laptop PC and its dedicated software.



### 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
- A USB cable connecting the receiver to the computer
- An ultra heavy-duty laptop computer that may be used as a writing tablet
- GAZOMAT™'s NGS multilanguage software, running on Microsoft® Windows® XP and Windows® 7.

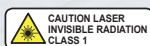




## TECHNICAL SPECIFICATIONS

# 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: 13 mm  
• Height of measurement character for GAS scale: 13 mm
- Keypad :** • 5 direct-control keys  
• Advanced function control with protected-access scrolling menu
- Power supply :** • Rechargeable Battery Pack: 3 x 1.2 V – 4000 A/h NiCd  
• Charging time: 14 hours maximum  
• 100 to 240 VAC / 50-60 Hz battery charger for ATEX battery pack
- Autonomy :** • 8 hours at 20 °C with all functions on (backlighting, pump on speed 2)  
• 6 hours at temperatures below 0 °C with all functions on (backlighting, pump on speed 2)  
• 6 hours at temperatures above 35 °C with all functions on (backlighting, pump on speed 2)
- 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 CH<sub>4</sub> concentration threshold  
    o Explosion risk due to methane CH<sub>4</sub> 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 :** • 2.7 kg with batteries (5.9 lbs)
- 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
- Certifications for the ATEX 1 ppm to 100 % volume gas version :**
- 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




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**After-Sales services :** GAZOMAT™ provides maintenance of all its products both in France and other countries through its many representatives world-wide.

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