

INSCAN

ANALYZE GASES SIMULTANEOUSLY AND CONTINUOUSLY



Identify, detect and analyze different gases in real-time up to 10 hours

Minimize the time invested to identify different gases within 10 seconds.

Why choose Labio INSCAN?

- **It is fast**
- **It is cost-effective**
- **It is easy to use**



INSCAN has various application areas, such as:

- Industrial hygiene- and exposure monitoring
- Confined space monitoring
- Shipping container monitoring
- Anesthetic waste gas monitoring
- Hazmat & first response gas monitoring
- Greenhouse gas flux measurements in various ecosystems
- Quality control LPG/LNG
- Quality control Laboratory gas tests

The system is typically set up to measure 16 among H₂O, CO₂, CO, NO, NO₂, N₂O, SO₂, NH₃, CH₄, HCl, HF and different VOCs.

The technology is able to:

- Analyze different and many gases
- Analyze volatile organic compounds (VOCs)
- Monitor environmental pollutants
- No carrier gas needed
- Minimum/none calibration needed

INSCAN 176 Portable Gas Analyzer

Analyze free combination of gases



Labio specializes in crafting tailored scientific instrumentation for clients seeking gas and liquid analysis. Labio's solutions and kits provide comprehensive workflow solutions that encompass not only cutting-edge instruments but also advanced technologies.

Precise and Fast Portable Gas Analysis

Accurate, reliable, and precise gas measurements serve multiple purposes. Gas measurements are vital for ensuring the safety of personnel and facilities. Accurate and reliable measurements enable the timely detection of toxic, flammable, or asphyxiating gases, allowing for immediate response and evacuation if necessary. By monitoring gas levels in real-time, potential hazards can be mitigated, and workers can be alerted to take appropriate measures to avoid accidents.

In industrial settings, accurate gas measurements help optimize processes by maintaining the ideal gas concentrations for efficient operation. This is crucial in industries such as chemical manufacturing, oil and gas, and pharmaceuticals, where precise gas control is necessary to ensure product quality, minimize waste, and maximize productivity.

Accurate and precise gas measurements play a vital role in environmental monitoring and protection. Monitoring emissions from industrial processes, vehicle exhausts, or natural sources helps assess air quality, identify pollutants, and develop strategies to reduce environmental impact. Reliable measurements are essential for tracking compliance with emission standards and implementing effective pollution control measures.



Fig. 1
Gas Measurements are vital for ensuring safety of personnel and facilities.

Ensuring Safety by Analyzing the Air

Ensuring the health and safety of workers is of paramount importance in every industry. Occupational Health and Safety (OHS) regulations require employers to maintain safe working environments and protect employees from potential hazards. Air chemical analysis plays a crucial role in assessing and mitigating occupational exposure risks. This technical brochure delves into the significance of occupational health and safety, highlights the benefits of air chemical analysis, and emphasizes the importance of detecting specific chemical substances that pose risks to workers.

Various industries present a wide range of potential hazards, including exposure to airborne chemical substances, which can adversely affect the health and well-being of employees. Compliance with Occupational Health and Safety regulations ensures a safe work environment and reduces the risk of occupational illnesses and injuries. By identifying potential hazards and implementing appropriate controls, employers can minimize the likelihood of accidents, exposure to hazardous substances, and other occupational health risks.

Occupational Health and Safety is a critical aspect of any industry, focusing on safeguarding workers from workplace hazards. Air chemical analysis plays a pivotal role in identifying and assessing potential risks associated with airborne chemical substances. By detecting specific hazardous compounds and monitoring their concentrations, industries can proactively protect workers, comply with regulations, and foster a safe and healthy work environment. Embrace the power of air chemical analysis to prioritize Occupational Health and Safety and uphold the well-being of employees in every industrial sector.

Air chemical analysis enables the identification and quantification of hazardous chemical substances present in the workplace air, helping to assess the level of exposure and potential risks to workers. Accurate analysis of air samples provides essential information on the concentration and composition of hazardous substances, aiding in the assessment of exposure levels. By identifying potential risks, air chemical analysis helps in implementing preventive measures, such as engineering controls, personal protective equipment (PPE), and ventilation systems. Regular air chemical analysis ensures ongoing compliance with occupational exposure limits and enables prompt corrective actions when necessary.

Examples include Benzene, Toluene, Xylene, Formaldehyde, and Ethylbenzene, which are commonly found in industries such as construction, chemical manufacturing, and in shipping containers. Fine particles, such as silica dust, asbestos fibers, and metal fumes, pose respiratory hazards in industries such as mining, construction, and manufacturing. Hazardous gases, including ammonia, hydrogen sulfide, chlorine, and carbon monoxide, can be encountered in various industrial settings, such as refineries, and manufacturing plants.



Identify, detect and analyze different gases in real-time up to 10 hours

Based on INSCAN NDIR

Non-dispersive infrared gas sensing (NDIR) is a unique optical sensing technique where IR radiation interacts with the targeted analyte and in the process, it is absorbed. This absorption is unique for every gas and hence, based on the absorption characteristics, gas molecules can be fingerprinted and distinctively identified. NDIR technologies are amenable to the detection of air pollutants emitted from emission sources such as carbon monoxide (CO), carbon dioxide (CO₂), sulfur dioxide (SO₂), nitrogen oxides (NO_x), nitrous oxide (N₂O), ammonia (NH₃), hydrogen chloride (HCl), hydrogen fluoride (HF) and methane (CH₄), etc.

The technical foundation of NDIR gas sensors is based on the Beer-Lambert Law: $I = I_0 \times \exp(-kCL)$ where I_0 is the initial radiation beam intensity, I is the beam intensity after traversing the gas to the detector, k is an absorption coefficient, C is a gas concentration, L is the sample optical path length defined typically by the effective sample chamber length of the sensor. One advantage of NDIR compared with other spectroscopy techniques is its low energy consumption. IR source with wavelengths in the range of 1–15 μm , can operate at a lower temperature than other sources.

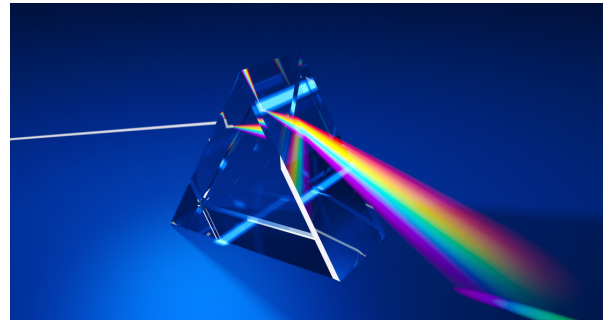


Fig. 2
Illustration of spectrum light. INSCAN is based on NDIR technology.

Cheapest Gas Analyzers on the Market

Experience real-time, in situ measurements with our advanced gas analyzer. Eliminate the wait for laboratory results by obtaining instant readings on the spot. Detect unknown gases and gain a comprehensive understanding of your environment. Enjoy complete portability, allowing you to relocate the analyzer wherever it's needed. Rely on its robust construction to withstand splashes, dust, and small bumps without worry. Simplify your monitoring needs with one compact package that caters to all industrial hygiene requirements. Streamline your workflow and save time with efficient, on-the-go gas measurements. Trust in the accuracy and reliability of our solution for precise and dependable results. Ensure the safety of your personnel and protect your production equipment effectively.

Choose ppm, ppb, ug/m3, VOL %

Upon ordering a portable gas analyzer from us, we can calibrate and customise the substance of interest and adapting the measurement range, e.g ppm, ppb, ug/m³ or VOL% according to your requirements. You can choose up to 16 free combination of gases with INSCAN Portable Gas Analyzer.

Technical Parameters

- Product name INSCAN Multi-gas analyzer
- Product model INSCAN 176 Portable Gas Analyzer
- Product specification according to the type of gas being measured
- Sampling mode: built-in pump suction type
- Response time $\leq 30\text{s}$
- Indication error $\leq 3\%\text{FS}$
- Work environment temperature $-10^{\circ}\text{C} \sim 55^{\circ}\text{C}$; Relative humidity: $\leq 93\%$ (non condensing)
- Storage environment Temperature: $-10^{\circ}\text{C} \sim 55^{\circ}\text{C}$; Relative humidity: $\leq 93\%$ (no condensation)
- Preheating time $\leq 90\text{s}$
- Indication mode LCD color touch LCD display
- Charging time no less than 10 hours
- Continuous working time no less than 15 hours
- Battery specification: DC7.2 v-26ah lithium ion rechargeable battery
- Weight about 4.75kg
- Size 293x110x210 (mm)

Functions Features

- Large screen color English menu operation
- High-resolution touch LCD display
- Quick detection of gas leak points
- Adjustable range
- Quick preheating, quick response time
- Sound vibration alarm signal
- Convenient zero adjustment, convenient and quick
- It can detect up to 16 free combinations of gases
- High temperature gas analyzer
- Temperature and humidity gas analyzer

Gas Detected	Industries
LEL - Combustible Gas	Oil and gas, chemical manufacturing, mining, refineries, petrochemicals
Carbon Monoxide	Oil and gas, chemical manufacturing, mining, refineries, pharmaceuticals, automotive, combustion processes, laboratories
TVOC	Indoor air quality monitoring, chemical manufacturing, laboratories, building ventilation systems
Hydrogen	Oil and gas, chemical manufacturing, fuel cell technology, hydrogen production and storage facilities, laboratories
Natural Gas	Oil and gas, energy production, residential and commercial heating and cooking, power generation
Oxygen (O2)	Medical facilities, laboratories, metal fabrication, aerospace, diving, wastewater treatment, combustion processes
Ozone	Environmental monitoring, air quality control, water treatment, ozone generators
Hydrogen Sulfide (H2S)	Oil and gas, mining, wastewater treatment, pulp and paper, agriculture, refineries, petrochemicals, laboratories
Methane (CH4)	Oil and gas, biogas production, anaerobic digestion, landfills, agriculture, wastewater treatment, laboratories
Fluorine	Semiconductor manufacturing, chemical manufacturing, electronics industry, glass production, refrigeration systems
Hydrogen Chloride	Chemical manufacturing, metal refining, waste incineration, PVC production, laboratories
Nitrogen (N2)	Food and beverage packaging, pharmaceuticals, metal fabrication, electronics manufacturing, inerting systems, laboratories
Chlorine	Water treatment, chemical manufacturing, disinfection processes, swimming pools, pulp and paper industry
Ammonia Gas	Fertilizer production, refrigeration systems, chemical manufacturing, food processing, water treatment, laboratories
Oxynitride	Semiconductor manufacturing, electronics industry, optical coatings
CO2	Greenhouse gas monitoring, environmental research, indoor air quality monitoring, carbon capture and storage, fermentation processes, laboratories
CO	Automotive emissions control, combustion processes, industrial safety, laboratories
Ethylene Bromide	Pesticide manufacturing, fumigation, fire suppression systems
NH3	Agriculture (fertilizer application, livestock management), refrigeration systems, chemical manufacturing, laboratories
Formaldehyde	Building materials, furniture manufacturing, adhesives, textiles, laboratories, indoor air quality monitoring
Ethylene Oxide	Sterilization processes (hospitals, pharmaceuticals), medical equipment manufacturing, laboratory equipment sterilization, fumigation
Benzene	Petroleum refining, chemical manufacturing, industrial solvents, gasoline production
Toluene	Paints and coatings, chemical manufacturing, printing industry, adhesives, laboratories
Acetaldehyde	Chemical manufacturing, plastics production, resins, solvents, laboratories
Xylene	Chemical manufacturing, paints and coatings, printing industry, laboratory reagents
CH3Br (Methyl Bromide)	Fumigation, agriculture (pest control), soil sterilization, laboratory applications
Styrene	Plastics and rubber manufacturing, composite materials, packaging, insulation, laboratory reagents
VOC	Indoor air quality monitoring, chemical manufacturing, paint and coatings, printing industry, laboratories, emissions control
CH4	Biogas production, anaerobic digestion, landfill gas monitoring, natural gas industry, laboratories