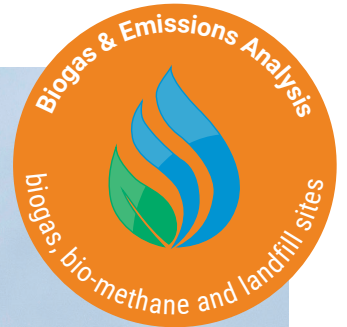
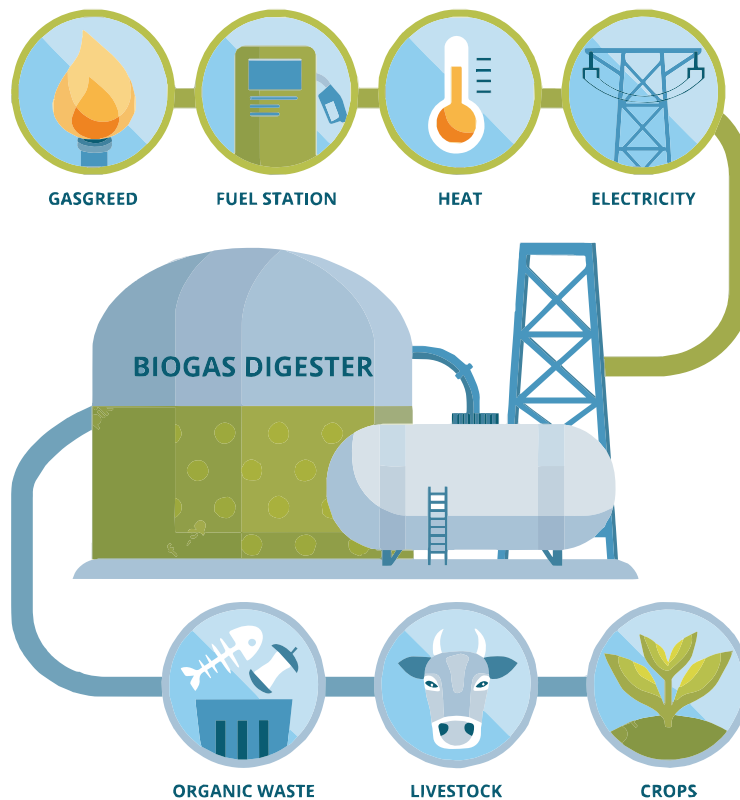


## BIOGAS & EMISSIONS ANALYSIS



**A Combustion Analyzer** is an essential tool for analyzing a **Biogas Application** due to several key reasons. It allows operators to assess the combustion efficiency, determine the energy content of biogas, monitor emissions for regulatory compliance, ensure safety by detecting hazardous components, optimize plant performance through data-driven decision making, and troubleshoot any issues that may arise. By utilizing a combustion analyzer, operators can maximize energy output, minimize environmental impact, and contribute to the sustainability of biogas plants.



Here are several reasons why a combustion analyzer is essential for analyzing a biogas plant:

- **Combustion Efficiency Assessment:** A combustion analyzer measures oxygen levels, flue gas temperature, and excess air to optimize biogas combustion and minimize energy losses.
- **Determining Energy Content:** The analyzer accurately measures the heating value of biogas, helping operators assess its suitability for electricity generation, heat production, or injection into gas pipelines.
- **Emission Monitoring and Compliance:** Real-time measurements enable operators to monitor emissions like CO<sub>2</sub>, nitrogen oxides, sulfur dioxide, and particulate matter, ensuring compliance with environmental regulations.
- **Safety Assurance:** Gas sensors in the analyzer monitor hazardous components like hydrogen sulfide (H<sub>2</sub>S), ensuring personnel safety and enabling leak detection and preventive measures.
- **Performance Optimization and Troubleshooting:** Continuous monitoring helps identify fluctuations and anomalies, allowing operators to optimize the process, troubleshoot issues, and enhance overall performance and reliability.
- **Data-Driven Decision Making:** The analyzer provides real-time data on combustion parameters and emissions, empowering operators to make informed decisions for process adjustments, maintenance, and operational strategies, leading to improved plant performance and reduced downtime.

Biogas, landfill gas, coal mine gas, biomethane, and offgas pose environmental risks and require regular analysis and control.

Accurate analysis of these gases is crucial for ensuring optimal operation across a wide range of biogas applications.

**Seitron Americas** offers ready-to-measure biogas analyzers, providing a unique industrial solution for various applications.

- Biogas plants
- Combined heat and power plants
- Municipal or industrial wastewater treatment plants
- Coal seam (coal mine gas) operations
- Landfill gas management
- Food and animal waste treatment plants
- Biomethane plants for natural gas grid feed-in
- Digester Gas

By providing accurate and reliable gas analysis, Seitron Americas' analyzers ensure optimal performance and efficiency in these diverse applications.



## **NOVO Bio Handheld Biogas Analyzer**

- 2-4 Gas Sensors
- 15 Preprogrammed Fuels for BioFuel 5%, B20, B50, B80, B100, Methane, Diesel, Digester and more.
- BUILT-IN Printer (optional)
- Long Life O2 Sensor (4 Years)



## **S6000 Bio Handheld Biogas Analyzer**

- 5-6 Gas Sensors
- 15 Preprogrammed Fuels for BioFuel 5%, B20, B50, B80, B100, Methane, Diesel, Digester and more.
- BUILT-IN Printer
- Long Life O2 Sensor (4 Years)



## **S9000 Bio Biogas Analyzer**

- Up to 12 Gas Sensors
- 15 Preprogrammed Fuels for BioFuel 5%, B20, B50, B80, B100, Methane, Diesel, Digester and more
- BUILT-IN Printer
- Peltier Chiller
- Automatic Water Removal System
- Heated Lines (optional)



# Handheld Portable Analyzers

Biogas Sensors  $\text{CH}_4$ ,  $\text{CO}_2$ ,  $\text{O}_2$ ,  $\text{H}_2\text{S}$

Exhaust Gas Sensors  $\text{O}_2$ ,  $\text{CO}_2$ ,  $\text{CO}$ ,  $\text{NO}$ ,  $\text{NO}_2$







## NOVO Bio Handheld Biogas Analyzer

- 2-4 Gas Sensors
- 15 Preprogrammed Fuels for BioFuel 5%, B20, B50, B80, B100, Methane, Diesel, Digester and more.
- BUILT-IN Printer (optional)
- Long Life O2 Sensor (4 Years)
- New Dual Range (Low/High) Sensor Technology
- Low NOx and SOx sensors
- CO Protection Dilution Pump
- Large data memory with interface to app and PC software
- Rechargeable Li-Ion Batteries
- Integrated water trap with LED backlight for easy
- Strong Powerful Holding Magnets
- Differential Pressure Manometer



Seitron Smart Analysis



Windows Software  
Seitron Smart Analysis



**Biogas measurement**  
CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>S

**Exhaust gas measurement**  
O<sub>2</sub>, CO<sub>2</sub>, CO, NO, NO<sub>2</sub>



**Applications**

- Biogas plants
- Combined heat and power plants
- Municipal or industrial waste water treatment plants
- Coal seam (coal mine gas)
- Food and animal waste treatment plants
- Biomethane plants (natural gas grid feed-in)
- Landfill
- Digester



## S6000 Bio Handheld Biogas Analyzer

- 5-6 Gas Sensors
- 15 Preprogrammed Fuels for BioFuel 5%, B20, B50, B80, B100, Methane, Diesel, Digester and more.
- BUILT-IN Printer
- New Dual Range (Low/High) Sensor Technology
- Low NOx and SOx sensors
- NOx & SOx in ONE Instrument
- Large data memory with interface to app and PC software
- Rechargeable Li-Ion Batteries
- Strong Powerful Holding Magnets
- Dilution pump for CO Auto range up to 100,000 ppm
- Differential Pressure Manometer



Seitron Smart Analysis



Windows Software  
Seitron Smart Analysis



 **Bluetooth®**



**Biogas measurement**  
CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>S

**Exhaust gas measurement**  
O<sub>2</sub>, CO<sub>2</sub>, CO, NO, NO<sub>2</sub>



**Applications**

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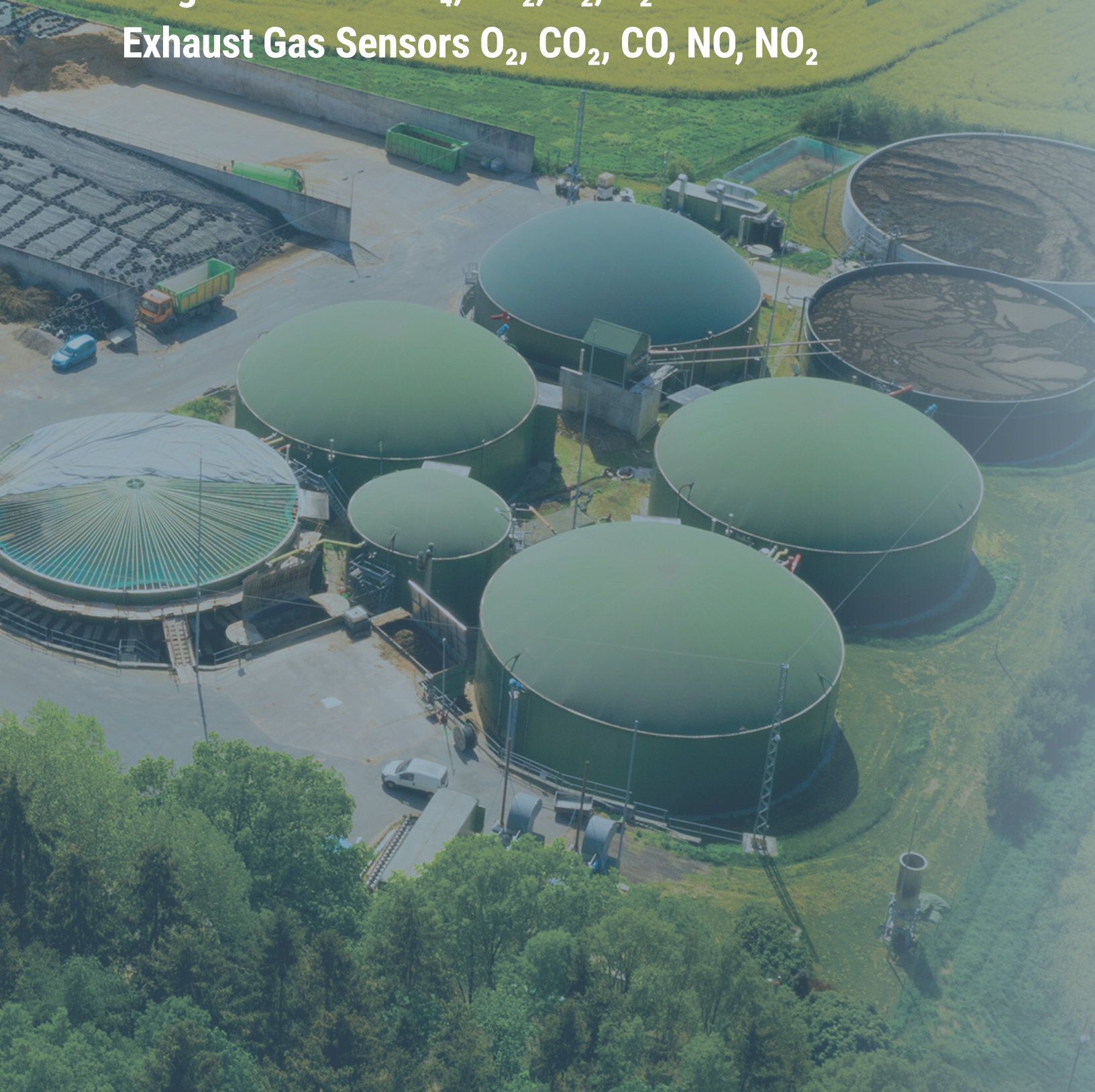


MEASUREMENT	SENSOR	RANGE	RESOLUTION	ACCURACY	
CH4 NDIR	NDIR Sensor	0..100% vol	0.01% vol	±0.3 vol ±10% v.m.	0 .. 10% vol 10.01% .. 100.00% vol
CO2 NDIR	NDIR Sensor	0..50% vol	0.01% vol	±1 vol ±2% fs	0 .. 10.00% vol 10.01% .. 50.00% vol
O <sub>2</sub> Long life	Electrochemical	0 .. 25.0% vol	0.1% vol	±0.2% vol	
H2S	Electrochemical Sensor	0...5000 ppm	1 ppm	± 10 ppm ± 10% v.m.	0 ppm - 100 ppm 101 ppm - 5000 ppm
H2S Low	Electrochemical Sensor	0...500.0 ppm	0.1 ppm	±5 ppm ±5% v.m.	0 .. 100.0 ppm 101 .. 500.0 ppm
CO sensor with Over Range protection (NOx filter) - Dual Range	Electrochemical	0 .. 500 ppm	0.1ppm	±2 ppm ±5% measured value	0 .. 40.0 ppm 40.1 .. 500.0 ppm
		501 .. 8000 ppm	1 ppm	±5% measured value ±10% measured value	501 .. 2000 ppm 2001 .. 8000 ppm
CO Mid	Electrochemical	0...20000 ppm	1 ppm	±10 ppm ±5% v.m. ±10% v.m.	0 .. 200 ppm 201 .. 4000 ppm 4001 .. 20000 ppm
CO High	Electrochemical	0...100000 ppm	1 ppm	±100 ppm ±10% v.m.	0 .. 1000 ppm 1001 .. 100000 ppm
NO	Electrochemical	0...500.0 ppm	0.1 ppm	±2 ppm ±5% v.m.	0 .. 40 ppm 40.1 .. 500.1 ppm
		501...5000 ppm	1 ppm	±10% v.m.	501 .. 5000 ppm
NO <sub>2</sub>	Electrochemical	0...100.0 ppm	0.1 ppm	±2 ppm ±5% v.m.	0 .. 40 ppm 40.1 .. 100.1 ppm
		101...1000 ppm	1 ppm	±10% v.m.	101 .. 1000 ppm
SO <sub>2</sub>	Electrochemical	0...500.0 ppm	0.1 ppm	±2 ppm ±5% v.m.	0 .. 40 ppm 40.1 .. 500.1 ppm
		501...5000 ppm	1 ppm	±10% v.m.	501 .. 5000 ppm
H <sub>2</sub>	Electrochemical Sensor	0...2000 ppm	1 ppm	± 10 ppm ± 10% v.m.	0 ppm - 100 ppm 101 ppm - 2000 ppm
H <sub>2</sub> High	Electrochemical Sensor	0...40000 ppm	10 ppm	± 100 ppm ± 10% v.m.	0 ppm - 1000 ppm 1001 ppm - 40000 ppm
NH <sub>3</sub> Low	Electrochemical Sensor	0...500.0 ppm	0.1 ppm	±10 ppm ±10% v.m.	0 .. 100.0 ppm 100.1 .. 500.0 ppm
CxHy	Pellistore Sensor	0.5% vol CH <sub>4</sub>	0.01% vol	±0.25% abs	
NO <sub>x</sub>	Calculated				
Air Temperature	TcK sensor	-4.0 .. 2282.0 °F -20.0 .. 1250.0 °C	32.18 °F 0.1 °C	±0.5 °C ±0.5%	32 .. 212 °F (0 .. 100 °C) 213.8 .. 2282.0°F (101 .. 1250 °C)
Stack Temperature	TcK sensor	-4.0 .. 2282.0 °F -20.0 .. 1250.0 °C	32.18 °F 0.1 °C	±0.5 °C ±0.5%	32 .. 212 °F (0 .. 100 °C) 213.8 .. 2282.0°F (101 .. 1250 °C)
Pressure (draft & differential)	Piezo Resistive	-40.1 .. +80.4 inH <sub>2</sub> O	0.004 inH <sub>2</sub> O	±1% measured value ±0.08 inH <sub>2</sub> O ±1% measured value	-40.1 .. -0.81 inH <sub>2</sub> O -0.80 .. +0.80 inH <sub>2</sub> O +0.81 .. +80.4 inH <sub>2</sub> O
Differential Temperature	Calculated	32.0 .. 2282.0 °F 0 .. 1250.0 °C	33.8 °F 0.1 °C		
Warranty	2 years on O <sub>2</sub> Sensors and 1 years on Analyzer, CO Sensor, Probe				

# Transportable Analyzers

Biogas Sensors  $\text{CH}_4$ ,  $\text{CO}_2$ ,  $\text{O}_2$ ,  $\text{H}_2\text{S}$

Exhaust Gas Sensors  $\text{O}_2$ ,  $\text{CO}_2$ ,  $\text{CO}$ ,  $\text{NO}$ ,  $\text{NO}_2$







## S9000 Bio Biogas Analyzer

- Ability to simultaneously measure up to 12 different gases, with up to 9 single gas measuring sensors and one infrared bench (NDIR) for High CO, Direct CO<sub>2</sub> & Hydrocarbons (HC)
- Measurable gases: O<sub>2</sub>, CO, CO<sub>2</sub>, C<sub>x</sub>H<sub>y</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S, H<sub>2</sub>, NH<sub>3</sub> with different ranges and accuracies
- Programmed Fuels for BioFuel 5%, B20, B50, B80, B100, Methane, Diesel, Digester, methane, LPG, propane, butane, light oil, heavy oil, wood, pellets, natural gas, coal, & more
- Pump for gas sample and 2nd dilution pump for CO cell protection
- Withstand very high stack temperatures
- Double particulate filter system
- Standard expansion water trap or Peltier quick Cooler
- Automatic condensate drainage with peristaltic pump
- Power supply from Lithium Ion Batteries or AC Power
- Datalogger function
- Industrial Grade Metal Case
- Optional Heated Lines Available



**Seitron Smart Analysis**





**Windows Software**



Seitron Smart Analysis



**Biogas measurement**  
CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>S

**Exhaust gas measurement**  
O<sub>2</sub>, CO<sub>2</sub>, CO, NO, NO<sub>2</sub>



### Applications

- Biogas plants
- Combined heat and power plants
- Municipal or industrial waste water treatment plants
- Coal seam (coal mine gas)
- Food and animal waste treatment plants
- Biomethane plants (natural gas grid feed-in)
- Landfill
- Digester

## S9000 - TECHNICAL FEATURES

- Emissions Measurements
- Thermoelectric Chiller with Automatic Condensate Drain
- Built-In Printer
- New iOS & Android App (Remote Display & QR Scanning)
- CO2: Direct CO2 measurement and/or % Calculation
- Low Ranges available for most sensors
- True NOx Measurement
- Combustion Efficiency, Losses, & Excess Air Calculations
- Draft & Differential Pressure
- Temperature Measurements
- Large Color Display
- 16,000 Test Internal Memory
- Bluetooth Connectivity
- Rechargeable Battery Pack & AC Charger
- Gas Sampling Probe & Hose
- PC Software & USB Cable
- Operating Manual
- Calibration Certificate
- Aluminum Carrying Case

### ORDERING CODE:

Model #	Description
S9000-A-B-C	Standard S9000 Kit Configuration with O2 sensor and 12" probe as standard

### Example:

**S9000-OCNL-IR-12H** = O2, Standard CO, Low Range NO, IR Bench (CO2, CxHy & High CO), with 12" Heated Line & Probe



TABLE A (Gas Sensor Options – Choose up to 8)

O	O2 Sensor (0..25.0% vol) <b>Included with standard kit</b>
C	Standard CO Sensor w/ H2 Compensation (0-8000 ppm)
CL	LOW-Range CO Sensor (0-500 ppm)
CM	MID-Range CO Sensor (0-20,000 ppm)
CH	HIGH-Range CO Sensor (0-100,000 ppm)
N	Standard NO/NOx Sensor (0-5000 ppm)
NL	LOW NO/NOx Sensor (0-500 ppm)
D	Standard NO2 Sensor (0-1000 ppm)
DL	LOW NO2 Sensor (0-500 ppm)
S	Standard SO2 Sensor (0-5000 ppm)
SL	LOW SO2 Sensor (0-500 ppm)
H	Standard H2S Sensor (0-5000 ppm)
HL	LOW H2S Sensor (0-500 ppm)
G	H2 Sensor (0-2000 ppm)
C	Standard CxHy Sensor (0-5 %)
A	Standard Ammonia (NH3) Sensor (0-500 ppm)

TABLE B (NDIR Bench Options)

IR*	CO2 NDIR Sensor (0-50%), CxHy NDIR Sensor (0-100,000ppm), and High CO NDIR Sensor (0-50%)
O	No IR Bench Included

\* IR Bench counts as 3 gas sensors

TABLE C - Probe Options

12	12" (300mm) Probe, 1112F (600C) max, with 10' (3m) <b>Included With Standard Kit</b>
30	30" (750mm) Probe, 1470F (800C) max, with 10' (3m) Dual Hose (AASF35)
40	40" (1000mm) Probe, 1470F (800C) max, with 10' (3m) Dual Hose (AASF36)
12H	12" (300mm) Probe, 1112F (600C) max, with 10' (3m) HEATED Hose and HEATED Probe Head (AASR03)
40H	40" (1m) Probe, 2190F (1200C) max, with 10' (3m) HEATED Hose and HEATED Probe Head (AASR04)

### OPTIONAL - Accessories and Consumable Parts

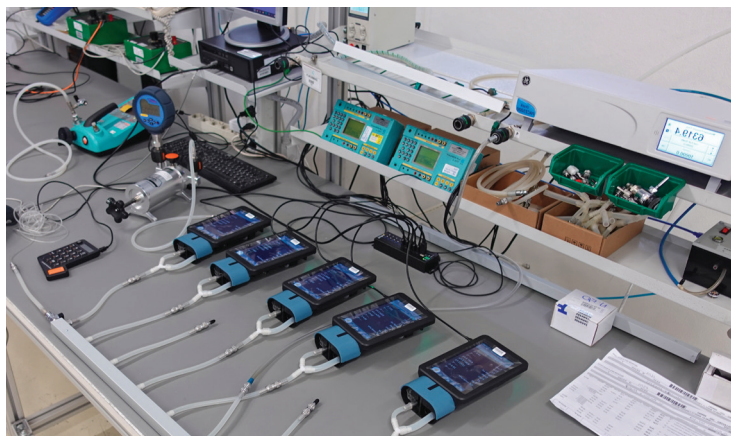
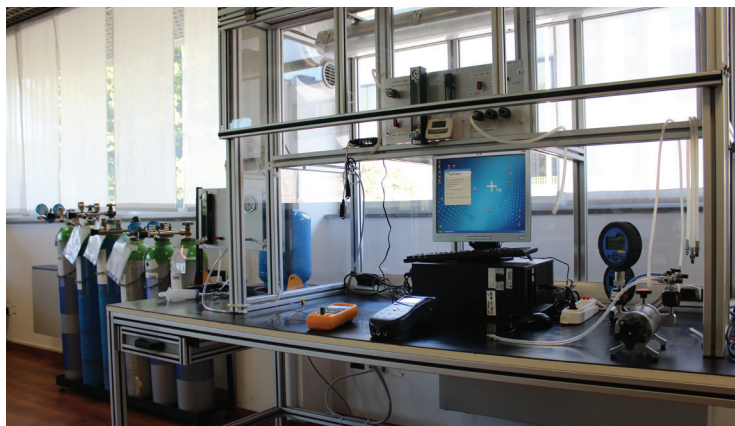
AARC10	Non-Fading Paper Roll (pack of 10)
AAFS02	Sintered Filter with Support for probe
AAFS01	Replacement Inox filter for AASF02
AATTA03	36" (900mm) Pitot Tube for Gas Velocity Measurements
AACEX02S	10' (3m) Dual Hose Extension
WFILA0001	Particulate Filter (Internal)
WFILX0016	Particulate Filter (External)
AAFA04	Anti-Dust filter (2pcs), only with NH3 installed
AASP01	Heat Protection Shield for probes
AAEB01	Trunk Extension
AATY01	Trunk Trolley
AACSA04	4" (100mm) Auxiliary Temperature Probe w/ 10ft (3m) hose



# Maintenance and Service

A high-quality, up-to-date and certified instrument in compliance with current standards is essential in carrying out your work in the best possible way, while minimizing liability.

- Gases (O<sub>2</sub>, CO, CO<sub>2</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, C<sub>x</sub>H<sub>y</sub>)
- Temperature
- Pressure
- Humidity
- Current
- Air Flow
- Refrigeration Gases



**24-48 Hr  
Turnaround**

**Services offered:**

- Calibration
- Annual certification
- Training
- Repairs
- Field technical support in real time
- Field calibrations



**On-Site Services**



**Calibration/Adjustments**



**Training**

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