



## Model 900403 Product Description and Specifications



**Winner of PTEN  
Innovation Award**

### **The Model 900403 Handheld All 4 Gases in a 5 Lb Battery Powered Gas Analyzer!**

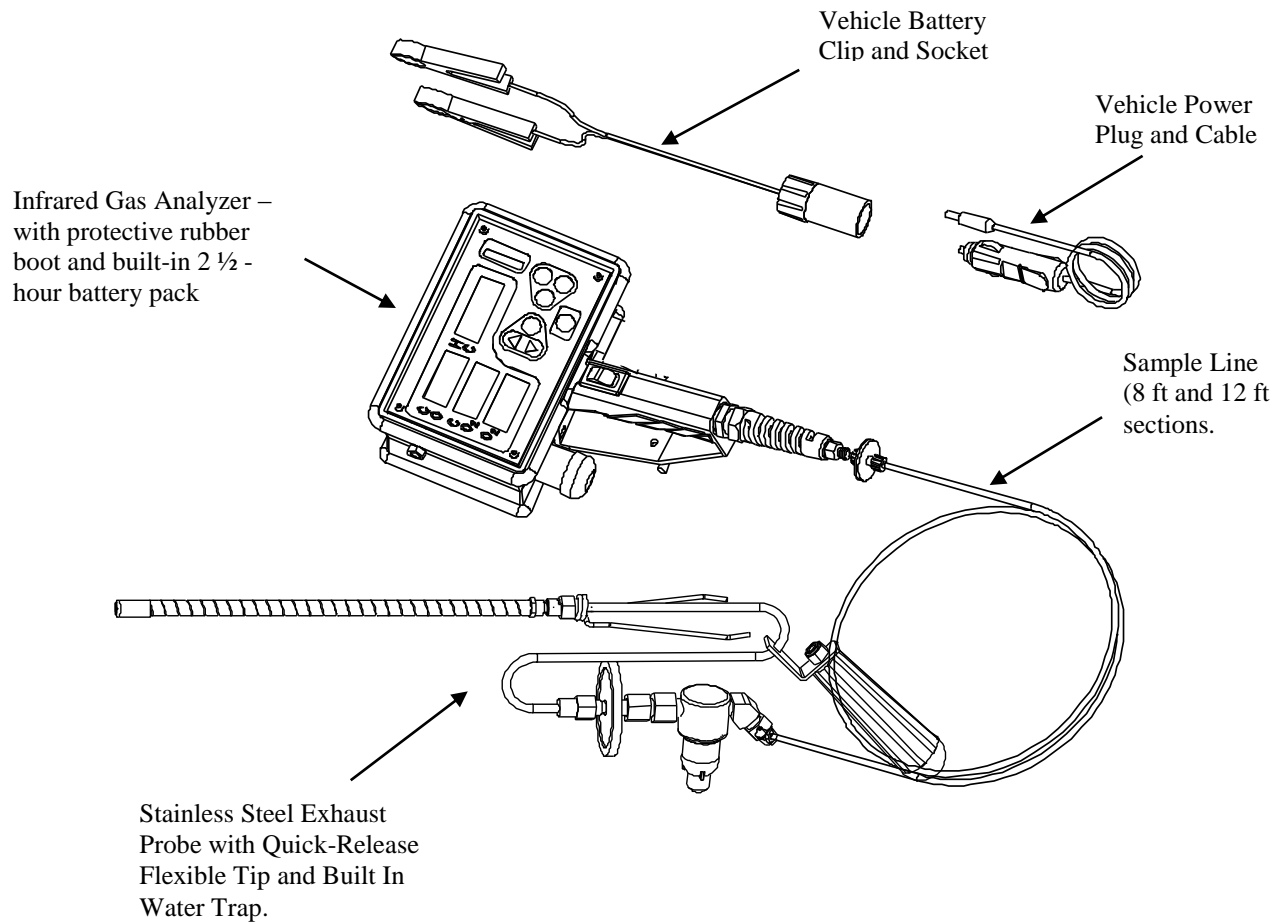
- Full-featured gas analyzer that you can hold in your hand!
- Identical to larger machines, uses 30-year time proven NDIR and chemical sensor technologies for reliable, accurate gas measurement.
- Self-powered on its own internal battery pack – 2 ½ hours roaming capability.
- In production for over 10-years – time proven in hundreds of applications.
- Fast – data available in 30 seconds – updates 4 times per second.
- Real time tuning calculations - Lambda/AFR and Combustion Efficiency.
- 4-Gases include O<sub>2</sub> and CO<sub>2</sub> – allows detection and correction of air dilution for better tuning.

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**Model 900403 Product Configuration:**





**Model 900403 Overview:**

The Model 900403 is a full-featured four gas (CO, HC, CO2, O2) gas analyzer that you can pick up, turn on, and carry around! It uses time-proven technologies to measure the gases - NDIR to measure CO, HC, and CO2, and an industry standard electro-chemical sensor to measure O2. These technologies are the only ones certified for gas analyzers used for domestic and international emissions test programs – such as California BAR-97 and OIML Internationally certified programs. They are the best technologies for gas analysis for exhaust gas tuning and diagnostics. Bridge has designed them into a very small analyzer – one that can be held in your hand – but has the same measurement accuracy of larger machines. The size and power reduction has resulted in the first analyzer that can be used as a hand-held tuning and diagnostics tool.

**Award-Winning Performance:**

The Model 900403 has been in production for over 10 years, with hundreds of installations, and has proven to be one of the most reliable gas analyzers available. Indeed, after being reviewed by a panel of certified automotive technicians, it has become the only gas analyzer to receive the prestigious Professional Tools and Equipment Innovation Award.

**Enhanced Diagnostics Capabilities:**

The 900403 has the ability to calculate Air/Fuel Ratio (AFR) and Lambda (the Stoichiometric equivalent to AFR.) and Combustion Efficiency from the exhaust gases for any of the three fuels measured – removing any guesswork about fuel control and operating effectiveness. Gas and diagnostic data is displayed at 4 times per second on large LED displays, making for fast response to changing gas levels – a critical requirement for transient mode operation. The analyzer operates either off its own battery for 2 ½ hours, and can be powered from the test vehicle 12V supply or a wall supply for dedicated in-shop use.

**Alternative Fuel Capable**

The fuel selection mode on all Bridge exhaust gas analyzers can be set to accurately and specifically measure the exhaust on Gasoline, LPG, or CNG fueled vehicles. Our analyzers are the only ones capable of this level of flexibility and accuracy.

**Complete and ready to go:**

The Model 900403 includes exhaust probe and hose, cigarette lighter power plug and cable, vehicle battery clips, spare filter pack, carrying/storage case and manual. It also includes an internal battery pack and external (mains-mounted) 12VDC supply.

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**Model 900403 Specifications:**

<b>Gases Measured:</b>	CO (Carbon Monoxide), HC (HydroCarbons – Hexane (Gasoline), Propane (LPG), or Methane (CNG or LNG), CO2 (Carbon Dioxide), O2 (Oxygen).
<b>Analysis Method:</b>	CO, HC, CO2: NDIR (Non Dispersive Infra-Red) O2: Electro-Chemical Sensor
<b>Reporting Ranges:</b>	CO: 0-10.00%, HC (Hexane and Propane): 0-9,999 ppm, HC (Methane) 0.000-5.000%, CO2: 0-20.0%, O2: 0.0-25.0%, AFR 7.5 – 30.0, Lambda: 0.500-2.000, Combustion Efficiency 0.00–99.99%.
<b>Resolution:</b>	CO: 0.01%, HC(Hexane, Propane): 1 ppm, HC(Methane): 0.001%, CO2: 0.1%, O2: 0.1%, AFR 0.1, Lambda: 0.001, CE 0.01%.



<b>Accuracy:</b>	All gas channels $\pm 5\%$ relative to gas reading.
<b>Repeatability:</b>	All gas channels $\pm 3\%$ full scale.
<b>Response Time:</b>	Less than 8 Seconds to 90% final value. (8 ft sample line)
<b>Data Display:</b>	13 digit, 0.50 inch 'Super Bright' red LED 7-segment display, contained in four displayed fields. (CO, HC, CO <sub>2</sub> , O <sub>2</sub> ), Updated 4 times per second.
<b>Operator Controls:</b>	Power Switch, ZERO Analyzer, PRINT Readings, CAL Mode, Up Arrow, DOWN Arrow, AFR/LAMBDA, NO <sub>x</sub> /Opt.
<b>Warm-up Time:</b>	30 Seconds to 10% accuracy 5 minutes to full accuracy. (Constant external ambient conditions)
<b>DC Power:</b>	Internal NiMH battery, external adapters to clip-onto +12V vehicle battery or plug into vehicle DC power socket.
<b>AC Power:</b>	Wall-mounted 110 VAC/60 Hz Std., (95-220VAC/50-60 HZ optional) remote supply for continuous operation from mains.
<b>Battery Pack:</b>	Internal rechargeable NiMH battery pack. 2 ½ hours typical continuous operation per charge. (Charger built into analyzer.)
<b>Size:</b>	Main Body: 4.5"H x 7.25"W x 3.75"D Including Handle: 12.5"H x 7.25"W x 4.25"D
<b>Weight:</b>	Analyzer and Case Assembly: 4 lbs. Including Hose and Probe: 6 lbs.
<b>Power:</b>	3 Watts total power required – either from internal battery pack, or external 9.0V to 15.0V supply. Battery charge mode requires 7 Watts from external supply.
<b>PC Interface:</b>	DB9 RS-232 Connector, 9600 baud. (Accessible with Bridge PC Software – P/N 106460 or Serial Printer P/N 106430)
<b>Gas Sample Rate:</b>	6 ml/sec typical. (Flow control pneumatics system.)
<b>Particulate Filters:</b>	Three modular, disposable filters – 1 ea 50 mm dia main particle filter, 1 ea 4 mm dia water trap filter, 1 ea 25 mm dia particle and water blocking filter on analyzer handle.
<b>Filter Life:</b>	Main Filter (50 mm dia): 2 Months, typical. Water Trap Filter (4 mm dia): 4 Months, typical. Analyzer Filter (25 mm dia): 4 months, typical.
<b>Chemical Sensor Life:</b>	Oxygen Sensor: 12-18 Months, typical.
<b>Gas Calibration:</b>	Fully calibrated from factory. No periodic re-calibration required. Uses standard BAR automotive calibration gases if desired for field calibration. (Requires P/N 000690 calibration gas adapter/regulator.)
<b>Sample Probe:</b>	10" Long Flexible Probe Tip (Stainless Steel Quick Release), Stainless steel 'S' bend, 50 mm dia particulate filter, Water Trap, rigid plastic handle.



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<b>Sample Hose:</b>	1 ea 8 ft & 12 ft sections – (20 ft total length) polyurethane thick-wall tubing, with quick disconnect fittings.
<b>Temperature:</b>	–10 to +40 degrees C ambient.
<b>Altitude:</b>	–100 to + 10,000 feet above mean sea level.
<b>Reliability:</b>	10,000 hrs MTBF.

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