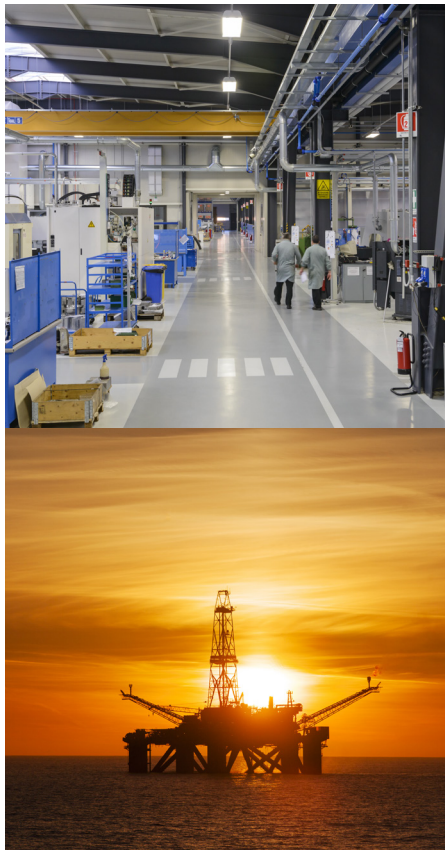# BASELINE® 9000 SERIES
# HYDROCARBON ANALYZERS

Continuious Monitoring of Hydrocarbons in Non-Condensing Gases

# BASELINE® 9000 SERIES
# HYDROCARBON ANALYZER

The Baseline® 9000 Hydrocarbon Analyzer product line are microprocessor-based instruments designed for continuous ambient or process hydrocarbon gas measurement in environmental or industrial settings. The analyzers can be purchased in a variety of configurations with internal components for single or multi-point sampling (with or without a sample pump) for pre-filtered non-condensing samples.

Using a Flame Ionization Detector (FID), MOCON's FlowGuard electronic control regulates the delivery of fuel, air, and a small portion of the sample gas, to the FID. During the combustion process, organic or hydrocarbon-based gases in the sample are ionized, detected by the instrument, and then reported as a concentration. The automatic calibration feature enhances the long-term analytical stability of the instrument.

All instrument parameters are reported clearly and continually refreshed on a large, graphical LCD display. Using analog, digital, and logic output communication capabilities, analytical information from the analyzer can be acquired using an external PC and a simple communications program such as Windows® HyperTerminal or the analyzer can output binary or ASCII formats directly to a data acquisition system or PLC. Every Baseline 9000 analyzer includes MOCON's free PC utility 9000 Keeper used for storing and uploading multiple methods, as well as sending configuration settings, directly to the analyzer.

## Unlimited Applications

- **Beverage-grade CO2 analysis**
- **Fenceline (perimeter) monitoring**
- **Scrubber and oxidizer efficiency**
- **Carbon bed breakthrough detection**
- **Contaminant analysis**
- **Ultra-Pure gases**
- **Well Logging**
- **Industrial hygiene & safety**
- **LEL monitoring**
- **VOC continuous emission monitoring systems**
- **Ambient air quality monitoring system**
- **Airborne molecualr contamination**
- **Compliance monitoring for EPA Method 25A**
- **Continuous emission stack monitoring**
- **Vehicle emissions**

## Features & Benefits

**Automated Control Featues**
- Automatic FID ignition
- Automatic calibration at user-defined intervals
- Internal multi-point sampling option
- Electronic back-pressure regulator with sample bypass system
- FlowGuard Control of fuel, air, and sample

**Versatile Platform**
- Graphic LCD dispaly with easy to use menu
- Benchtop or rack-mountable
- Single or multi-point sampling
- Customizable ethernet or serial output
- Programmable analog output ranges
- Programmable relays for diagnostics, concentration, alarms, and events

## TOTAL HYDROCARBONS
### BASELINE 9000 THA

Concentration Port 3

**7.390**

ppm

| Port: | 1 | 2 | 3 | 4 |
| Alarm: | | C | W | A |
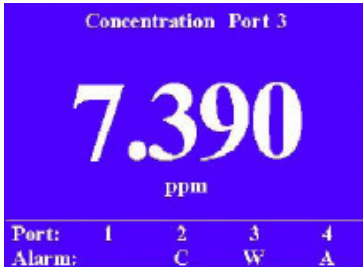
The 9000 Total Hydrocarbon analyzer is a versatile instrument for use in numerous applications ranging from parts-per-billion level detection for trace analysis in ultra pure gases to %-level for process optimization or LEL monitoring.
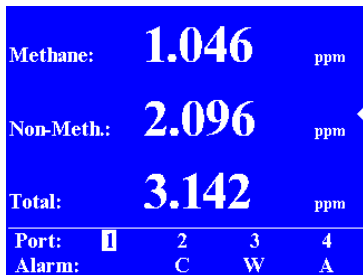
**Applications**
• Beverage-grade CO2 analysis
• Fenceline (perimeter) monitoring
• Scrubber and oxidizer efficiency
• Carbon bed breakthrough detection
• Contaminant analysis
• Well Logging
• Industrial Hygiene & safety
• LEL monitoring

**Accurate Detection**
• User definable ranges
• Automatic FID ignition

## METHANE/NON-METHANE
### BASELINE 9000 MNME

| Methane: | **1.046** | ppm |
| Non-Meth.: | **2.096** | ppm |
| Total: | **3.142** | ppm |

| Port: | 1 | 2 | 3 | 4 |
| Alarm: | | C | W | A |

The 9000 Methane/Non-Methane analyzer uses a flame ionization detector (FID) in conjunction with an oxidation catalyst that oxidizes all hydrocarbons except methane to produce a methane measurement which is then subtracted from the total concentration to determine the non-methane hydrocarbon reading.
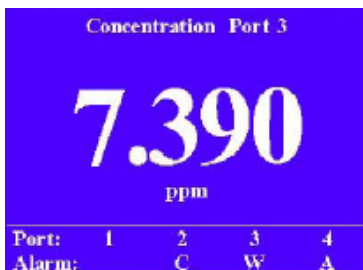
**Applications**
• VOC Continuous emission monitoring systems
• Ambient air quality monitoring system
• Airborne molecular contamination
• Available in ambient or 120º for heated samples

**Accurate Detection**
• User definable ranges
• Automatic adjustment for catalyst efficiency variance
• Fast (<30 sec) reproduceable response
• Automatic calibration

## HEATED TOTAL HYDROCARBONS
### BASELINE 9000 H-THA

Concentration Port 3

**7.390**

ppm

| Port: | 1 | 2 | 3 | 4 |
| Alarm: | | C | W | A |

The 9000 Heated analyzer functions like the 9000 THA but is configured for single point analysis (with or without a sample pump) of samples heated up to 376 °F (191 °C) for pre-filtered (< 10 microns) non-condensing samples.
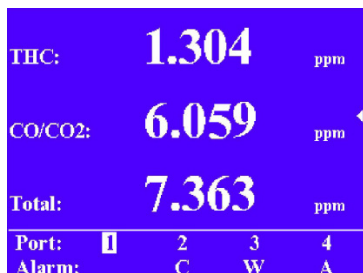
**Applications**
• Compliance monitoring for EPA Method 25A
• Continuous emission stack monitoring
• Scrubber and oxidizer efficiency
• Carbon bed breakthrough detection
• Vehicle emissions

**Accurate Detection**
• User definable ranges
• Detection limits <150 ppb as methane
• Automatic calibration
• Drift <0.025% of full-scale over 24 hours

## HYDROCARBONS & CO/CO₂
### BASELINE 9000 TCA

| THC: | **1.304** | ppm |
| CO/CO2: | **6.059** | ppm |
| Total: | **7.363** | ppm |

| Port: | 1 | 2 | 3 | 4 |
| Alarm: | | C | W | A |

The 9000 Total Carbon analyzer utilizes a flame ionization detector (FID) in conjunction with a catalytic methanizer that converts the CO and CO2 to methane (CH4) and leaves the hydrocarbons unchanged for a total carbon measurement which is then subtracted from the total carbon concentration to determine the combined CO/CO2 reading.

**Hydrocarbon & CO/CO₂ Impurities in Ultra-Pure Gasses**
• Argon, Ar
• Helium, He
• Hydrogen, $H_2$
• Nitrogen, $N_2$

**Accurate Detection**
• User definable ranges
• Detection limits <100 ppb as methane
• Automatic calibration
• Drift <0.01% of full-scale over 24 hours

# BASELINE® 9000 SERIES
# HYDROCARBON ANALYZER

## Technical Specifications

| | 9000 THA | 9000 MNME | 9000 MNME 120 | 9000 TCA | 9000 H |
|---|---|---|---|---|---|
| **DETECTOR** | Flame Ionization Detector (FID) | Flame Ionization Detector (FID) w/ Oxidizer | Flame Ionization Detector (FID) w/ Oxidizer | Flame Ionization Detector (FID) | Flame Ionization Detector (FID) w/ Oxidizer |
| **RANGES (AS CH$_4$)** | User definable based upon calibration:<br><br>• Very Low - 0.01 ppm to 200 ppm<br>• Low - 0.1 ppm to 2,000 ppm<br>• Medium - 0.3 ppm to 20,000 ppm<br>• High - 0.003% ppm to 100% ppm | User definable based upon calibration:<br><br>• Low - 0.03 ppm to 50 ppm<br>• Medium - 0.06 ppm to 500 ppm<br>• High - 0.15 ppm to 5000 ppm | User definable based upon calibration:<br><br>• Low - 0.06 ppm to 50 ppm<br>• Medium - 0.6 ppm to 500 ppm<br>• High - 1.0 ppm to 5000 ppm | User definable based upon calibration:<br><br>• Low - 0.1 ppm to 100 ppm | User definable based upon calibration:<br><br>• Very Low - 0.15 ppm to 200 ppm<br>• Low - 0.3 ppm to 2,000 ppm<br>• Medium - 0.6 ppm to 20,000 ppm<br>• High 0.003% to 50% |
| **ACCURACY, REPEATABILITY** | +1% full-scale response | +1% full-scale | +1% full-scale | +1% full-scale | +1% full-scale |
| **DRIFT, ZERO** | +0.025% full-scale over 24 hours | +0.01% full-scale, 24 hours | +0.01% full-scale, 24 hours | +0.01% full-scale, 24 hours | +0.025% full-scale, 24 hours |
| **DRIFT, SPAN** | +1% full-scale, 24 hours | +1% full-scale, 24 hours | +1% full-scale, 24 hours | +1% full-scale, 24 hours | +1% full-scale, 24 hours |
| **RESPONSE TIME** | T90 < 5 seconds | T90 < 30 seconds | T90 < 30 seconds | T90 < 30 seconds | T90 < 5 seconds |
| **SAMPLING** | Internal single or multi-point, (pump optional) | Internal single or multi-point, (pump optional) | Internal single or multi-point, (pump optional) | Internal single point (pump optional) | Internal single point (pump optional) |
| **ALARMS** | Multilevel concentration and fault alarms, audible and visual | Multilevel concentration and fault alarms, audible and visual | Multilevel concentration and fault alarms, audible and visual | Multilevel concentration and fault alarms, audible and visual | Multilevel concentration and fault alarms, audible and visual |
| **CALIBRATION** | Programmable automatic or manual calibration | Programmable automatic or manual calibration | Programmable automatic or manual calibration | Programmable automatic or manual calibration | Programmable automatic or manual calibration |
| **SUPPORT GAS REQUIREMENT** | • UHP Hydrogen (H$_2$) 30 cc/min<br><br>• Zero air - 175 cc/min<br><br>• Span gas - methane is typical<br><br>*Fuel blend options available* | • UHP Hydrogen (H$_2$) 35 cc/min<br><br>• Zero air - 175 cc/min<br><br>• Span gas - methane/propane is typical<br><br>*Fuel blend options available* | • UHP Hydrogen (H$_2$) 35 cc/min<br><br>• Zero air - 175 cc/min<br><br>• Span gas - methane/propane is typical<br><br>*Fuel blend options available* | • UHP Hydrogen (H$_2$) 35 cc/min<br><br>• Zero air - 175 cc/min<br><br>• Span gas - methane w/ C0 or C0$_2$ typical | • UHP Hydrogen (H$_2$) 30 cc/min<br><br>• Zero air - 175 cc/min<br><br>• Span gas - methane is typical<br><br>*Fuel blend options available* |
| **DISPLAY** | Graphical LCD, 3.4" x 4.5" (8.64 cm x 11.43 cm) | Graphical LCD, 3.4" x 4.5" (8.64 cm x 11.43 cm) | Graphical LCD, 3.4" x 4.5" (8.64 cm x 11.43 cm) | Graphical LCD, 3.4" x 4.5" (8.64 cm x 11.43 cm) | Graphical LCD, 3.4" x 4.5" (8.64 cm x 11.43 cm) |
| **OUTPUTS** | • LAN/Ethernet, RS-232<br><br>• Analog, 1 programmable 0-20mA/4-20mA isolated output<br><br>• Relays, 5 programmable From A relays rated to 3A @230VAC<br><br>(Optional)<br><br>• 3 additional analogs<br>• 9 additional relays | • LAN/Ethernet, RS-232<br><br>• Analog, 1 programmable 0-20mA/4-20mA isolated output<br><br>• Relays, 5 programmable From A relays rated to 3A @230VAC<br><br>(Optional)<br><br>• 3 additional analogs | • LAN/Ethernet, RS-232<br><br>• Analog, 1 programmable 0-20mA/4-20mA isolated output<br><br>• Relays, 5 programmable From A relays rated to 3A @230VAC<br><br>(Optional)<br><br>• 3 additional analogs | • LAN/Ethernet, RS-232<br><br>• Analog, 4 programmable 0-20mA/4-20mA isolated output<br><br>• Relays, 14 programmable From A relays rated to 3A @230VAC | • LAN/Ethernet, RS-232<br><br>• Analog, 1 programmable 0-20mA/4-20mA isolated output<br><br>• Relays, 5 programmable From A relays rated to 3A @230VAC |
| **OPERATING TEMPERATURE** | 32 to 104º F (0 to 40 C) | 32 to 104º F (0 to 40 C) | 32 to 104º F (0 to 40º C) | 32 to 104º F (0 to 40º C) | 32 to 104º F (0 to 40º C) |
| **OPERATING HUMIDITY** | 0 to 95% (non-condensing) | 0 to 95% (non-condensing) | 0 to 95% (non-condensing) | 0 to 95% (non-condensing) | 0 to 95% (non-condensing) |
| **CONFIGURATION** | Benchtop or 19" (48.3cm) rack-mount, 3U | Benchtop or 19" (48.3cm) rack-mount, 3U | Benchtop or 19" (48.3cm) rack-mount, 3U | Benchtop or 19" (48.3cm) rack-mount, 3U | Benchtop or 19" (48.3cm) rack-mount, 3U |

## Accessories

**Prevenitive Maintenance Kit**
• Includes all parts potentially needed on-hand

**Gas Generators**
• Hydrogen Generator
• Zero Air generators

**Software**
• 9000 Keeper provided for method switching via PC

**Service & Support Options**
• Start-up and training, 1 day onsite

## Other Specifications

**Physical Specifications**
• 5.25"H x 19"W x 16.25"D (13.02 cm x 48.26 cm x 41.28 cm)
• <20 Lbs. (9.07 kg)

**Electrical Specifications**
• Voltage: 100 - 240 VAC 50/60 Hz, 1A

MOCON, Inc.
19661 US-36 PO Box 649
Lyons, CO 80540, USA
www.ametekmocon.com
info.baseline@ametek.com

**AMETEK®** | **mocon®**