

HEATED HYDROCARBON ANALYZER



Model 300-HFID

FEATURES

- CE Approved
- Made in USA
- Sensitivity 0.1 ppm
- Automatic ignite capability – local or remote
- Automatic fuel/air shut off
- Adjustable oven temperature 60 to 200°C (internally adjustable)
- Internal heated filter with external access
- Complete digital presentation including sample/fuel/air pressures (no gauges)
- Electronic proportional pressure sample controller
- Multiple range capability
- Optional continuous methane only
- Digital diagnostics
- 19" rack mount (only 5-1/4" high)

APPLICATIONS

- EPA Method 25A compliance monitoring of source hydrocarbons
- Stack gases (CEM)
- Diesel emissions
- Process chemical gas analysis
- Solvent recovery
- Vehicle emissions
- Carbon bed breakthrough detection
- Fenceline (perimeter) monitoring
- Non-methane hydrocarbon measurements

 **California Analytical Instruments, Inc.**

Model 300 HFID
HEATED HYDROCARBON ANALYZER

DESCRIPTION

The CAI Heated Total Hydrocarbon Analyzer Model 300 HFID is designed to continuously measure the total concentration of hydrocarbons within a gaseous sample. It contains an internal heated sample pump and an adjustable temperature heated oven. All components in contact with the sample are maintained at the oven set temperature preventing condensation.

METHOD OF OPERATION

The Model 300 HFID uses the Flame Ionization Detection (FID) method to determine the total hydrocarbon concentration within a gaseous sample. The analyzer has an adjustable heated oven (60 TO 200°C) which contains a heated pump and a burner in which a small flame is elevated and sustained by regulated flows of air and either pure hydrogen or a 40/60 mixture of hydrogen and nitrogen. The burner jet is used as an electrode and is connected to the negative side of a precision power supply. An additional electrode, known as the "collector," is connected to a high impedance, low noise electronic amplifier. The two electrodes establish an electrostatic field. When a gaseous sample is introduced to the burner, it is ionized in the flame and the electrostatic field causes the charged particles (ions) to migrate to their respective electrodes. The migration creates a small current between the electrodes. This current is measured by the precision electrometer amplifier and is directly proportional to the hydrocarbon concentration of the sample.

METHANE ONLY OPTION

The Methane Only Option provides the capability for measuring METHANE ONLY or TOTAL HYDROCARBONS. The choice is switch selectable from the front panel or by remote contact closure. Additional hardware includes a heated catalyst assembly and a three-way valve. Conversion efficiency is greater than 98% for propane and above. (This option requires the use of 40/60% H₂/He fuel and a readout as ppm CH₄).

SPECIFICATIONS

ANALYSIS METHOD: Flame Ionization Detector (FID)

MULTIPLE RANGE CAPABILITY:

Eight operation ranges - 10, 30, 100, 300, 1000, 3000, 10,000, 30,000 ppm carbon

RESOLUTION: 0.01 ppm Carbon (lowest range)

REPEATABILITY: Better than ± 0.5% of full scale

LINEARITY: Better than 1% of full scale

O₂ EFFECT: Less than 2% of full scale

CH₄ EFFECT: Less than 1.3 times Propane

RESPONSE TIME: 90% of full scale in 1.5 seconds

SAMPLE FLOW RATE: With pump: 3.0 liter/min.
±1.5 liter/min.

INTERNAL SAMPLE FILTER: 0.1 micron replaceable filter provided

NOISE: Less than ± 0.5% of full scale

ZERO & SPAN DRIFT: Less than 1% of full scale per 24 hours

FLOW CONTROL: Electronic Proportional Pressure Controller

FUEL REQUIREMENTS: 40% H₂/60% He (100cc/min.) or 100% H₂ (30cc/min.) (specify at time of order)
Fuel inlet pressure 25 psig

READOUT: As ppm CH₄ or C₃H₈ (specify at time of order)

AIR REQUIREMENTS: Less than 1 ppm Carbon
Purified or synthetic air (200cc/min.)
Air Inlet Pressure 25psig

DISPLAY: 3-1/2 Digit Panel Meter

DIAGNOSTICS: 3 1/2 Digit Panel Meter with 8 Position Switch

- Collector Voltage • +15 VDC
- Fuel Pressure • Burner Temperature
- Air Pressure • Oven Temperature
- Sample Pressure • Catalyst Temperature

ANALOG OUTPUT: 0-10 VDC & 4-20 mA
DC/0-20 mA DC

FUEL/AIR CONTROL: Forward Pressure Regulator

IGNITION: Momentary push-button with Flame-On Indicator (manual or remote control)

AMBIENT TEMPERATURE: 5-45°C

WARM-UP TIME: 1 hour

FITTINGS: 1/4" tube

POWER REQUIREMENTS: 115/230 (±10%) VAC @ 50/60 Hz, 750 watts

Dimensions: 5-1/4"H x 19" W x 23" D
(133mm x 483mm x 508mm)

RELATIVE HUMIDITY: Less than 90% RH non-condensing

WEIGHT: 50 lbs. (22 kg)

Specifications subject to change without notice.



California Analytical Instruments, Inc.

1238 West Grove Avenue, Orange, California 92865-4134

Telephone: (714) 974-5560 • Fax: (714) 921-2531

Web Site: www.gasanalyzers.com