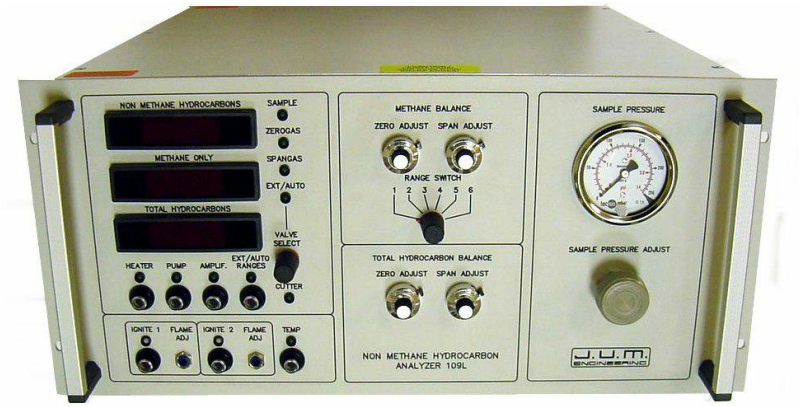
HIGH TEMPERATURE TOTAL HYDROCARBON/NON-METHANE HYDROCARBON ANALYZER
MODEL 109L



Fulfills THC requirements for 2. BImSchV. 13. BImSchV and 17. BImSchV (DE) and fully complies with EN 12619 and EN 13526 (EU) and EPA Method 25A and Method 503 (USA)

The J.U.M. Engineering HFID Model 109L is a competitively priced, compact table top or 19" rack mount, heated Non Methane Hydrocarbon analyzer for the measurement in ambient air, air emissions and other gases.

With the exception of the sample filter, the 109L is 100% compatible with our successful long standing model 109A.

Two hydrogen flame ionization detectors (FID) are used in a heated oven to prevent the loss of high molecular weight hydrocarbons during measurement and to provide reliable performance in the analysis of both, low and high level concentrations.

All sample wetted components are integrated into the heated chamber. The heated sample filter is easily accessible via three screws on the rear panel. No special tools are required for the sample filter changes.

Low cost of ownership: Very low fuel gas consumption. The combustion air supply for the FID-detector is built in. No external cylinder for synthetic combustion air is needed.

Features

- Continuous, simultaneous signals of:
- a) Total-HC
- b) Methane-Only
- c) Total-HC less Methane (NMHC)
- Dual detector dual electrometer design
- Built in heated sample pump
- Built in burner air supply, no extra air cylinder needed
- Easy to change sample filter accessible on the rear panel. No special tools required for filter changes
- Separate calibration valves for zero- and span calibration, standard manual and remote operation
- Automatic flame out alarm
- Fast response within <1.5 sec. for THC and > 45 sec. for CH_4
- Low fuel consumption
- Very selective
- All heated components
- Remote control for sample, zero and span is standard

Applications

- Stack gas emissions monitoring
- Ambient air monitoring to low concentration levels
- Raw automotive and diesel exhaust analysis
- Thermal reactor and combustor emissions monitoring (e.g. Commercial Bakeries)
- CEM compliance testing

Product Brochure,
FID Model 109L, english, © J.U.M. Engineering 2009

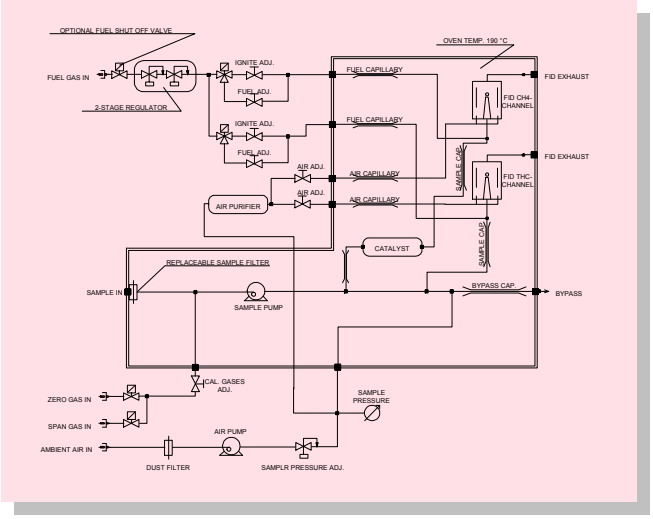
Principle of Operation

The Flame Ionization Detection (FID) method is used to determine the presence of total hydrocarbon concentrations in a gaseous sample:

Burning hydrocarbon-free hydrogen in hydrocarbon-free air produces a negligible number of ions.

Once a sample containing hydrocarbons is introduced into this flame a very complex ionization process is started. This process creates a large number ions. A high polarizing voltage is applied between the two electrodes around the burner nozzle and produces an electrostatic field. Now negative ions migrate to the collector electrode and positive ions migrate to the high voltage electrode. The so generated ionization current between the two electrodes is directly proportional to the hydrocarbon concentration in the sample that is burned by the flame. This signal is measured and amplified by our electrometer-unit.

One of the two sample capillaries is connected in series to a high temperature catalyst module. This catalyst oxidizes all hydrocarbons except the methane. Both detectors are connected to individual electrometer amplifiers. From these two signals, total hydrocarbons from the detector without the catalyst and methane only from the detector with the catalyst, the non methane hydrocarbon signal is generated via a differential amplifier, resulting in the three continuous simultaneous signals displayed on individual digital meters.



1 Technical Data	
Method of analysis . . .	Flame Ionization Detector
Sensitivity	Max. 1 ppm CH_4 full scale
Response Time	90% full scale in >1 second (THC), >45 seconds (CH_4, NMHC), synchronizing for both channels optional; >45s
Zero drift	<1.5% full scale / 24h
Span drift	<1.5% full scale / 24h
Linearity	Up to 10.000ppm within 1% FSD
Oxygen synergism . . .	< 1.5 % FSD
Measuring ranges (ppm)	0-10,100, 1.000, 10.000, 100.000, others on request
Analog outputs	3 x 0-10 VDC
Display	3 x 3 1/2 digital
Sample pump	approx. 2.5 l/min capacity @ operating temp.
Zero / span adjust . . .	Manual on front panel
Fuel consumption . . .	100% H_2 approx. 40 ml/min @ 1.5 bar (22 psig)
Fuel consumption . . .	40%H_2/60%He approx. 180 ml/ min @ 1.5 bar (22 psig)
Burner air consumption	built in burner air supply
Oven temperature . . .	190°C (374°F)
Power requirements . .	either 230VAC/50Hz, 1250 W or 115VAC/60Hz, 1250 W
Ambient temperature .	5-43°C (41-110°F)
Dimensions (W x D x H)	19" (483 mm) x 460 mm x 221 mm
Weight	approx. 25 kg (55 lb.)
J.U.M. reserves the right, at any time and without notice, to change specifications presented in this data sheet and assumes no responsibility for the application or use of the devices described herein.	

Available Options	
AMU 9	Automatic range selection
AZM 9	Automatic flame ignition and re-ignition
ENGA 9	3 direct reading engineering unit displays, 0-100.000 units, e,g, ppm. Overlaps 3 measuring ranges. Range change may not become necessary
FOAS 9	Flame out control with automatic fuel shut off valve
MBP 9	Integrated bypass pump
PDA 9	Sample pressure monitor with alarm
RCC 9	Remote control range selection
TPR 9	EXTERNAL temperature controller for heated sample line, e.g. JUM TJ100
Availability of options may change unannounced! Please contact us before specifying your purchase order	

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