HIGH TEMPERATURE TOTAL HYDROCARBON ANALYZER
MODEL VE 7

TÜV approved for
2. BImSchV. 13. BImSchV and 17. BImSchV (DE) and fully complies with EN 12619, EN 13526 (EU) and EPA Method 25A and Method 503 (USA)

The J.U.M. Engineering HFID Model VE7 is a time proven and a very reliable and rugged 19" rack mount heated total hydrocarbon analyzer for low drift, high accuracy, sensitivity and stability. The Model VE7 uses a hydrogen flame ionization detector (FID) in a heated oven to prevent the loss of high molecular weight hydrocarbons and to provide reliable performance in the analysis of high concentrations down to trace levels of THC-contaminants in high purity gases, air and other gases.

All sample wetted components are integrated into the heated chamber. The permanent heated sample filter is cleaned by back purging with compressed air or nitrogen. This allows uninterrupted measurements during cleaning the sample filter. While back purging the sample filter, the sample line is also cleaned. The use of a stack probe filter is not necessary.

The combustion air supply for the detector is built in. No expensive zero gas generator or external cylinder for synthetic air is needed.

Our rear adapter-plate system allows cold-spot free coupling of a heated sample line inside the heated oven without the need of special tools. The fittings can easily be accessed through a wrench port in the right side panel.

Features

- All components in contact with sample are fully heated and controlled at 190°C
- Built-In sample pressure and sample pumps
- Built-in combustion air supply, no extra burner air bottle needed
- Maintenance free sample filter backpurge system allows filter to be cleaned without dismantling (automatic purge optional)
- Permanent heated 2 µm stainless steel mesh filter
- "Overflow" calibration system for safe zero/span calibration
- Automatic flame out control with alarm and OPTIONAL fuel shut off valve
- Fast response less than 1 second
- Low fuel consumption and very selective
- Microprocessor PID-type temperature controller
- Cold spot free coupling of a heated sample line inside the heated oven (optional)
- Remote control for sample, zero/span and backpurge is standard
- Automatic or remote range change optional

Applications

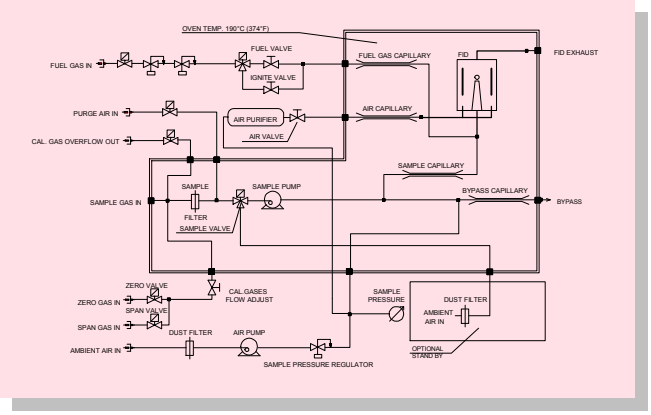
- EPA Method 25A compliance monitoring of source hydrocarbons
- Stack gas hydrocarbon emissions monitoring
- Fence line (perimeter) monitoring
- Solvent recovery monitor for carbon bed break through
- Catalytic converter testing
- Carbon adsorption regeneration control
- Measuring engine combustion efficiency
- Raw exhaust vehicle emissions analysis
- Hydrocarbon contamination monitoring in air and other gases
- Carbon adsorption regeneration control
- Detection of trace hydrocarbons in purity gases used in the semi conductor industry
- LEL monitor of solvent laden air

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.

A sample pressure regulator provides a controlled back pressure at the sample capillary which gives admittance of a constant sample flow rate to the burner. This technique without the conventional back pressure regulator is used by J.U.M. Engineering for over 30 years to provide the highest possible sample flow rate stability and lowest maintenance. Our compactly designed flow control module for controlling the fuel and air flow rates via needle valves use high precision pressure regulators. The needle valves are factory adjusted and sealed to ensure the optimization of the burner.



Technical Data

Method of analysis . . .	Flame Ionization Detector
Sensitivity	Max. 1 ppm CH_4 full scale
Response time	0.2 seconds
T_{90} time	1.2 seconds
T_{90} time with heated line (7.5m) and filter	less than 8 seconds
Zero drift	<1.0% full scale / 24h
Span drift	<1.0% full scale / 24h
Linearity	Up to 10.000ppm within 1% FSD
Oxygen synergism . . .	< 1.2% FSD
Measuring ranges (ppm)	0-10,100, 1.000, 10.000, 100.000, others on request
Analog outputs	0-10 VDC and 4-20 mA
Display	3 1/2 digit
Sample pump	approx. 2.5 l/min capacity @ operating temp.
Zero and span adjust .	Manual on front panel
Fuel consumption 100% H_2	approx. 20 ml/min @ 1.5 bar (22 psig)
Fuel consumption 40%H_2/60%He	approx. 90 ml/min @ 1.5 bar (22 psig)
Burner air consumption	built in burner air supply
Oven temperature . . .	190°C (374°F)
Temperature control . .	µ-processor PID controller
Power requirements . .	either 230VAC/50Hz, 850 W or 115VAC/60Hz, 850 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 lbs)

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

Some Options Cannot be Combined

AMU 7	Automatic controlled range change
APO 7	Internal automatic programmable backpurge system for the sample filter
AZM 7	Automatic flame ignition and re-ignition
DCC 7	Dual concentration alarm w. individual adjust-able thresholds and alarm outputs
ENGA 7	6-digit engineering units display 0-100.000 ppm with RS232 data output.
FOAS 7	Flame out control with automatic fuel shut off valve
HBPR 7 *	Fully heated sample back pressure regulator
ICM 7 **	Built-in NMHC Cutter, measure either THC or Methane-Only with one analyzer
LTO 7	Measurement of low trace hydrocarbon levels. Requires external, zero grade combustion air supply
MBP 7 ***	Integrated bypass pump for very long sample lines, also compensates sample pressure fluctuations
PDA 7	Sample pressure monitor with alarm
RCA 7	0-20mA analog output instead of 4-20mA
RCC 7	Remote controlled range change
RCI0 7	0-20 mA analog output, galvanically isolated
RCI4 7	4-20 mA analog output, galvanically isolated
TPR 7	Built in temperature controller for J.U.M. heated sample lines Model TJ 100
Important!	* HBPR cannot be combined with ICM or MBP ** ICM cannot be combined with LTO *** MBP cannot be combined with ICM

Availability of options may change unaccounted!

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