HIGH TEMPERATURE TOTAL HYDROCARBON ANALYZER
MODEL 3-500

Fully complies with EN 12619, EN 13526 (EU), EPA Method 25A and Method 503 (USA) and 2. BImSchV, 13. BImSchV & 17. BImSchV (Germany)

The J.U.M. Engineering HFID Model 3-500 is a *low cost*, compact 19" rack mount heated total hydrocarbon analyzer for high accuracy, sensitivity and stability.

The Model 3-500 uses our time proven 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 trace to high concentration levels of contaminants in stack emissions, ambient air, high purity gases, air and other gases.

All sample wetted components, including the sample filter are housed in the heated oven. The sample filter is easy accessible from the rear panel. No special tools are required for changing the sample filter.

Our standard combustion air generator is built in. No extra bottles for burner air are needed.

Our time proven microprocessor driven engineering unit data display is standard and allows measurements over two decades without the need to change measuring ranges. Two analog outputs and one RS 232 data output are standard too.

Features

- ⇨ Low operating cost and easy to operate
- ⇨ 24 bit microprocessor type direct reading ppm display with RS232 data output to cover 3 measuring ranges without range change
- ⇨ All sample wetted components are housed in heated oven, controlled at 190°C
- ⇨ Built-In sample and control/ burner air pressure pumps
- ⇨ Built-in combustion air supply, no extra air bottle needed
- ⇨ Easy to change 2 micron heated sample filter
- ⇨ Automatic flame out control with standard fuel shutoff valve
- ⇨ Fast response: less than 1 second
- ⇨ Low fuel consumption
- ⇨ Very selective
- ⇨ Microprocessor PID-type temperature controller

Applications

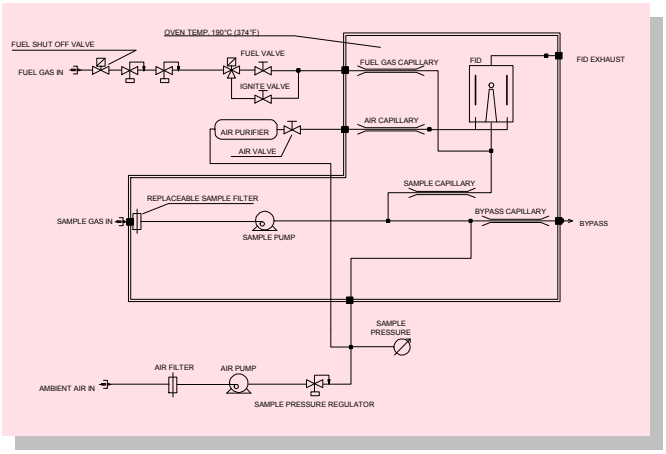
- ⇨ Stack gas hydrocarbon emissions monitoring
- ⇨ EPA Method 25A compliance monitoring of source hydrocarbons
- ⇨ Continuous VOC in cooling tower monitoring (with optional El Paso Stripper)
- ⇨ Solvent recovery monitor of carbon bed break through
- ⇨ Catalytic converter testing
- ⇨ Carbon adsorption regeneration control
- ⇨ Measuring engine combustion efficiency and Raw exhaust vehicle emissions analysis
- ⇨ Hydrocarbon contamination monitoring in air and other gases
- ⇨ 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	Approx. 0.2 seconds
T_{90} time	1 second
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
Signal outputs	RS 232, 0-10 VDC and 4-20 mA
Display	6 digit engineering unit
Sample pump	approx. 2.5 l/min capacity @ operating temp.
Sample Filter	2 micron change filter
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 132 mm
Weight	approx. 20 kg (44 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 35	Automatic range change
AZM 35	Automatic flame ignition and re-ignition
DCC 35	Dual concentration alarm w. individual adjust-able threshold and alarm outputs
LTO 35	Measurement of low trace hydrocarbon levels. Requires external, zero grade combustion air supply!
MBP 35	Integrated bypass pump
PDA 35	Sample pressure monitor with alarm
RCA 35	0-20 mA analog output instead of 4-20 mA
RCC 35	Remote control range change
RCI0 35	0-20 mA analog output, galvanically isolated
RCI4 35	4-20 mA analog output, galvanically isolated
TPR 35	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!

J.U.M.® Engineering G.m.b.H.
Manufacturing, R&D, Distribution & Service

Gauss-Str. 5
D-85757 Karlsfeld, Germany
Tel.: 49-(0)8131-50416, Fax: 49-(0)8131-98894
E-mail: info@jum.com, Internet: http://www.jum.com

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