HIGH TEMPERATURE TOTAL HYDROCARBON ANALYZER
MODEL 3-700

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

Especially designed to be directly coupled eizj a FTIR multi gas emissions analyzer (e.g. Gasmet), the J.U.M. Engineering HFID Model 3-700 is a very compact 19" rack mount heated total hydrocarbon analyzer for high accuracy, sensitivity and stability.

The Model 3-700 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 trace level of contaminants in high purity gases, air and other gases.

All sample wetted components are integrated into the heated chamber.

Separate inlet fittings for zero and calibration gas. FTIR sample is automatically routed to waste during FID calibration. Miniature protective 2 µm filter disk in "sample T fitting".

Equipped with the proprietary J.U.M. Engineering built in burner air supply which reduces maintenance and overall operating cost.

While the 3-700 is a self extracting, open bypass based instrument which extracts the sample from its internal bypass system, it fits any application, where a dry or wet sample stream with a flow of 2 to 6 liters per minute is available. It may also be used to measure total VOC in hot steam.

Features

- ☐ To be directly coupled to a heated FTIR analyzer, no extra sampling train required
- ☐ All components in contact with sample fully heated and controlled at 190°C
- ☐ Built-In sample pressure and sample pumps
- ☐ Built-in combustion air supply, no extra air bottle needed
- ☐ Very low cost of ownership
- ☐ "Overflow"-calibration system for pressureless zero- and span calibration
- ☐ Automatic flame out control
- ☐ Fast response less than 1 second
- ☐ Very low fuel consumption
- ☐ Very selective
- ☐ Cold spot free coupling of a heated sample line inside the heated oven is standard
- ☐ Remote control for sample, zero and span is standard.

Applications

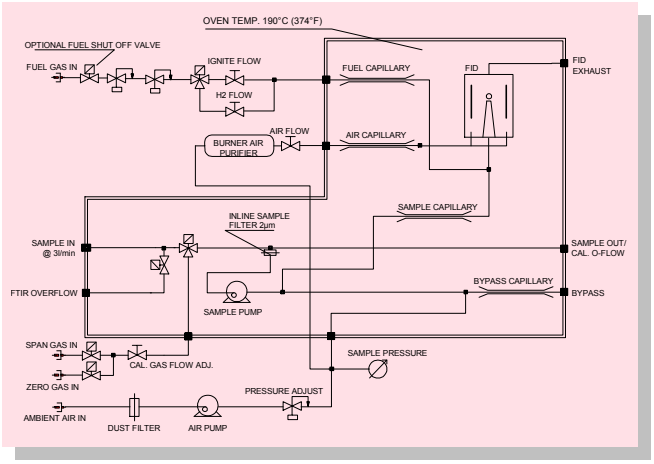
- ☐ Stack gas hydrocarbon emissions monitoring
- ☐ EPA Method 25A compliance monitoring of source hydrocarbons
- ☐ Solvent recovery monitor of carbon bed break through
- ☐ Catalytic converter testing
- ☐ Carbon adsorption regeneration control
- ☐ Raw exhaust vehicle emissions analysis
- ☐ Hydrocarbon contamination monitoring in air and other gases
- ☐ Carbon adsorption regeneration control

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 132 mm
Weight	approx. 23 kg (44 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

AMU 37	Automatic range change
AZM 37	Automatic flame ignition
DCC 37	Dual concentration alarm w. individual adjust-able thresholde and alarm outputs
ENGA 37	6-digit display, 0-100.000 ppm
FOAS 37	Flame out control with automatic fuel shut off valve
LTO 37	Measurement of low trace hydrocarbon levels. Requires external, zero grade combustion air supply!
PDA 37	Sample pressure monitor with alarm
RCA 37	0-20 mA analog output instead of 4-20 mA
RCC 37	Remote control range change
RCI0 37	0-20 mA analog output, galvanically isolated
RCI4 37	4-20 mA analog output, galvanically isolated
TPR 37	EXTERNAL temperature controller for heatead sample line, e.g. JUM TJ100

Availability of options may change unannounced! Please contact us before specifying your purchase order!

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