PORTABLE HIGH TEMPERATURE TOTAL ORGANIC CARBON AND METHANE CARBON FID - ANALYZER
MODEL 3-900

Fully complies with EN 12619, EN 13526 (TOC-EU), VDI 3481, 2. BImSchV, 13. BImSchV and 17. BImSchV (TOC Germany), and EPA Methods 25A and 503 (USA)

The J.U.M. Engineering HFID Model 3-900 is a portable very compact heated total hydrocarbon analyzer with an internal non methane hydrocarbon cutter for the accurate, sensitive and stable measurement of total organic carbon and alternately methane carbon using a Flame Ionization Detector (FID).

The Model 3-900 uses a FID in a heated oven to prevent the loss of high molecular weight hydrocarbons and to provide very reliable performance in the analysis of trace level of contaminants in emissions, process gases, in air and in other gases.

Our optional 50 liter metal hydrid fuel storage ***(See inserted picture)*** allows a 45 hour minimum of uninterrupted operation. This fuel storage can be very safely self-filled at a low pressure of 25 bar. No special adapter needed.

A rear panel toggle switch allows to chose between total organic carbon and methane carbon measurements. The disposable heated sample filter is easily accessible from the rear panel and no special tools required for a quick and easy sample filter change. All sample wetted components are integrated into the heated chamber.

Low cost of ownership. Very low fuel gas consumption. The compressor to control the sample pressure and deliver purified combustion air for the FID-detector is already built in. No external compressed air and no external burner air from cylinders or generators is needed.

Features

- ⇨ Easy to change sample filter accessible on the rear panel. No special tools required for filter change
- ⇨ Built in control air compressor and burner air generator, no external air from cylinders or compressors needed
- ⇨ All components in contact with sample fully heated and controlled at 190°C
- ⇨ Built in rear panel switch to select between METHANE an THC
- ⇨ Built-in sample pressure and sample pumps
- ⇨ Separate solenoid valves for zero- and span calibration with standard selector for manual and remote operation
- ⇨ Automatic flame out control
- ⇨ Fast response within 1 second for THC
- ⇨ Low fuel consumption, no air consumption
- ⇨ Very selective to hydrocarbons
- ⇨ Microprocessor controlled PID-type temperature controller
- ⇨ Automatic range change optional

Applications

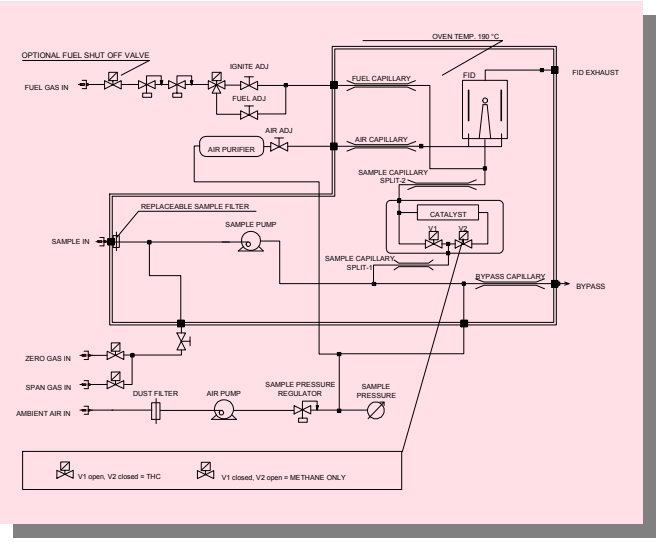
- ⇨ Ambient air monitoring
- ⇨ Stack gas hydrocarbon emissions monitoring
- ⇨ Fence line monitoring
- ⇨ Raw exhaust vehicle emissions analysis
- ⇨ Catalytic converter testing
- ⇨ Measuring engine combustion efficiency
- ⇨ Hydrocarbon contamination monitoring in air and other gases
- ⇨ Carbon adsorption regeneration control
- ⇨ Detection of trace hydrocarbons in purity gas distribution systems, used in the semi conductor industry

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. This 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 solenoid valve in the oven allows to select between methane carbon only measurement or the measurement of total organic carbon.

A sample pressure regulator provides a controlled back pressure at the sample capillary which gives admittance of a highly constant sample flow rate to the burner. This technique without using 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. The compact design of our valve and temperature controlled catalytic module allows switch selectable measurements between total carbon and methane carbon.



Technical Data	
Method of analysis	Flame Ionization Detector
Method of carbon selection	Temperature controlled catalyst
Sensitivity	Max. 1 ppm CH_4 full scale
Response time total C	0.2 seconds
T_{90} time total C/ methane C	1.2 seconds/ 45 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 10.000 ppm 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.
Sample filter	disposable 2µm inorganically bonded micro fiber cartridge
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)	300 mm x 580 mm x 204 mm
Weight	approx. 18 kg (40 lbs)

J.U.M. reserves the right to make improvements on the product described in this brochure at any time without prior notice. Information provided in this brochure is subject to be changed without notice.

Available Options	
AMU 39	Automatic range change
AZM 39	Automatic flame ignition and re-ignition
ENGA 39	6-digit display, 0-100.000 ppm, with RS 232 data output
FOAS 39	Flame out control with automatic fuel shut off valve
RCA 39	0-20 mA analog output instead of 4-20 mA
RCI0 39	0-20 mA analog output, galvanically isolated, instead of standard 4-20 mA
RCI4 39	4-20 mA analog output, galvanically isolated, instead of standard 4-20 mA
TPR 39	External temperature controller for heated sample line, e.g. JUM TJ100

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

Represented By