HIGH TEMPERATURE TOTAL HYDROCARBON ANALYZER
MODEL 5-100

The J.U.M. Engineering HFID Model 5-100 is a compact 19" rack mount or table top heated total hydrocarbon analyzer for high accuracy, sensitivity and stability for pressurized samples with conventional sample back pressure regulator..

The Model 5-100 is ideally suited for the detection of very low traces of hydrocarbons in pressurized high purity gases, including hydrogen Option HYD 51). The 5-100 may also be well suited for the integration in low concentration CEM's and other analytical systems which already are equipped with a complete sampling train and have a master sample pump.

The Model 5-100 uses a hydrogen flame ionization detector (FID) in a heated oven to prevent the loss of high molecular weight hydrocarbons and to provide long term stability and reliable performance in the analysis of low trace concentration levels of hydrocarbon contaminants in high purity gases, air and other gases, including hydrogen.

Except the sample back pressure regulator, all sample wetted components are integrated into the heated FID oven.

Again: an option for the measurement of very low trace hydrocarbon concentrations in high purity gases is available.

Features

- Heated oven FID, low priced, very economical
- Low maintenance
- Excellent long term stability
- Conventional non-heated sample back pressure regulator (BPR)
- Slim line design
- Automatic flame out indicator with automatic fuel shut off valve
- Fast response within 1 second
- Low fuel and air consumption
- Very selective
- All heated components, except BPR
- Microprocessor PID-type temperature controller for FID-oven

Applications

- Detection of low trace hydrocarbon levels in high purity gases as CO_2 O_2, Ar, N_2, He and others
- Inspection of high purity plumbing systems used in the semi conductor industry
- Solvent recovery monitor of carbon bed break through
- Catalytic converter testing
- Carbon adsorption regeneration control
- Hydrocarbon contamination monitoring in air and other gases
- Carbon adsorption regeneration control
- Clean room applications
- Monitoring for VOC and/or Oil vapor break through after compressor air purifying systems

Product Brochure,
FID Model 5-100, english

Principle of Operation

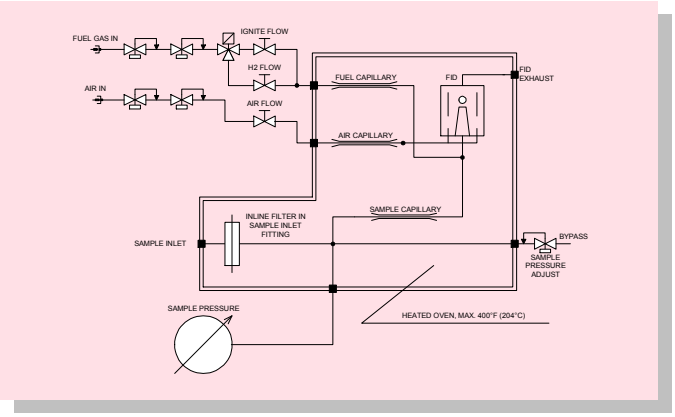
The Flame Ionization Detection (FID) method is used to determine the presence of total hydrocarbon concentrations in a gaseous sample:

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 conventional sample back pressure regulator creates a constant back pressure to the sample capillary which provides constant sample gas flow to the detector.

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	90% full scale in 0.8 seconds @ 3 l/min Bypass flow
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 (0-1ppmFSD is optional)
Analog outputs	0-10VDC and 4-20mA
Display	3 1/2 digit
Zero and span adjust . .	Manual on front panel
Fuel consumption H_2 . . .	approx. 20 cc/min @ 1.5 bar (22 psig)
Fuel consumption 40%H_2/60%He	approx. 90 cc/min @ 1.5 bar (22 psig)
Burner air consumption .	150 cc/min to 230 cc/min @1.5 bar (22 psig), depending on fuel gas!
Oven temperature	190°C (374°F)
Temperature control . . .	electronic PID-type 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" (483mm) x 460mm x 132mm
Weight	approx. 14 kg (30 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 51	Automatic controlled range change
AZM 51	Automatic flame ignition and re-ignition
HYD 51	This switching module allows to measure THC concentration in Hydrogen gas. An additional supply of N2 carrier gas is needed.
ENGA 51	6-digit engineering units display 0-100.000 ppm with RS232 data output.
ICM 51 *	Built-in NMHC Cutter, measure either THC or Methane-Only with one analyzer
LTO 51	Module for the measurement of low trace hydrocarbon levels
QCM 51 **	Built-in NMHC Cutter with **FAST RESPONSE TIME, > 5 SEC**., measure either THC or Methane-Only with one analyzer
RCA 51	0-20mA analog output instead of 4-20mA
RCC 51	Remote controlled range change
RCI0 51	0-20 mA analog output, galvanically isolated
RCI4 51	4-20 mA analog output, galvanically isolated
TPR 51	EXTERNAL temperature controller for J.U.M. heated sample lines Model TJ 100 and Model TJ 100A
Important!	* ICM cannot be combined with LTO ** QCM cannot be combined with LTO
Availability of options may change unaccounted!	

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: