TRACE HYDROCARBON in HYDROGEN FID-ANALYZER
H100

The J.U.M. Engineering HFID Model H100 is a compact 19" rack mount or table top heated FID analyzer for the measurement of low trace total hydrocarbon concentration in Hydrogen. High accuracy, high sensitivity and good stability are reached with the FID housed in a heated oven.

The Model H100 is ideally suited for the detection of very low traces of hydrocarbons in pressurized high purity Hydrogen gasses. H100 may also be well suited for the integration in low concentration Hydrogen online inspection systems.

The Model H100 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 Hydrogen.

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

Features

- Heated oven FID, low priced, very economical
- Low maintenance
- Excellent long term stability
- Conventional sample back pressure regulator (BPR)
- 19-inch slim line design, 132mm high
- Automatic flame out indicator with automatic fuel shut off valve
- Fast response
- Low fuel and air consumption
- Very selective
- All heated components in oven, except BPR
- Microprocessor PID-type temperature controller for FID-oven

Applications

- Detection of low trace hydrocarbon levels in high purity Hydrogen Gas
- Online inspection of high purity Hydrogen plumbing systems
- Online monitoring on loading terminals for hydrocarbon contamination in Hydrogen

Product Brochure,
FID Model H-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 DVM, 6-digit direct reading engineering unit (ppm or other) display optional
Zero and span adjust .	Manual on front panel
Fuel consumption H_2 .	approx. 20 cc/min @ 1.5 bar (22 psig)
Carrier gas Consumption	1.2 liter/min @ 1.5 bar
Burner air consumption	150 cc/min @1.5 bar (22 psig),
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	
AZM 100	Automatic flame ignition and re-ignition
ENGA100	6-digit direct reading engineering units display, e.g. ppm. No range change necessary over up to 3 decades
AMU 100	Automaic range change with range identification
RCC 100	Remote controlled range change with range identification
LTO 100	Sample setup for the measurement of low trace hydrocarbon levels under 1ppm full scale deflection
RCA 100	0-20mA analog output instead of 4-20mA
RCI0 100	0-20 mA analog output, galvanically isolated
RCI4 100	4-20 mA analog output, galvanically isolated
TPR 100	EXTERNAL temperature controller for J.U.M. heated sample lines Model TJ 100 and Model TJ 100A

Rear View H-100

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: