



## PORTABLE TOTAL ORGANIC VAPOR ANALYZER OVF-2000



J.U.M. Engineering's OVF-2000 is an over the shoulder portable, battery operated, compact and low weight total organic vapor analyzer for high accuracy, sensitivity and stability.

The OVF-2000 uses our rugged 3-gas/two electrode type of hydrogen **F**lame **I**onization **D**etector (FID), proven over a long period of time in combination with our new design extractive dry FID-exhaust system. This system works without the need for a sintered flame arrestor. No limits exist for the amount of Oxygen content in the sample.

A low pressure hydrogen fuel gas storage system is used which lasts for 24 hours of continuous operation. Refilling the removable fuel gas storage requires only a maximum of 430 PSI of hydrogen pressure. No more time consuming refilling procedures and half empty master cylinder handling needed. One master filling cylinder and one backup cylinder is a sufficient infrastructure.

provide best performance in the analysis of trace- to high concentration levels of contaminants in emissions, ambient air, high purity gases, air and other gases.

### Features

- ⇒ Internal low pressure hydrogen fuel storage system holds enough fuel gas for 24 hours of continuous operation
- ⇒ Maximum hydrogen filling pressure is only 430 PSI (30 bar)
- ⇒ 8 hour battery life with display back light on, 16 hours with back light off
- ⇒ Built in combustion air purifier
- ⇒ To prevent detector failure caused by water saturated flame arrestors, an extractive FID exhaust system is used.
- ⇒ All components in contact with sample are made of stainless steel, Teflon<sup>®</sup> and Viton<sup>®</sup>
- ⇒ Built-in combustion air, - sample pressure and sample pumps
- ⇒ 5 automatically adjusting measuring ranges from 0 - 10 ppm to 0 - 100,000 ppm
- ⇒ Internal 2 micron stainless mesh sample filter which can be reused after cleaning in an ultrasonic bath
- ⇒ Flame out alarm
- ⇒ Fast response within 2 seconds
- ⇒ Low fuel consumption
- ⇒ Very selective

### Applications

- ⇒ Natural Gas Leak Detection
- ⇒ Storage Tank and Underground Storage Tank Leak Detection
- ⇒ Landfill and Hazardous Waste Site Evaluation
- ⇒ Fugitive Emissions Monitoring
- ⇒ Emergency response
- ⇒ Hydrocarbon contamination monitoring in air and in inert gases

**Principle of Operation**

The typical 3-gas Flame Ionization Detection (FID) method is used to determine the presence of total hydrocarbon and total organic vapor concentrations in a gaseous sample. Burning hydrocarbon-free hydrogen fuel gas 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 polarizing voltage is applied between the two electrodes around the burner nozzle and produces an electrostatic field where negative carbon ions migrate to the collector electrode and positive hydrogen 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 a very sensitive electrometer amplifier.

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. A very compactly designed flow control module for controlling the fuel and air flow rates via needle valves use high precision pressure regulators.

Technical Data	
Method of analysis . . . . .	Flame Ionization Detector
Safety certifications . . . . .	Currently general purpose only, intrinsically safe for class 1, Div. 1, groups A,B,C, &D in preparation
Sensitivity . . . . .	Max. 0 to 10 ppm CH <sub>4</sub> full scale
Response time . . . . .	< 2.5 seconds @ sample in, < 5 seconds with 1.5 meters of 1/4" sample line
Zero drift . . . . .	< 5% full scale / 8h
Span drift . . . . .	<5% full scale / 8h
Linearity . . . . .	Up to 10.000 ppm within 5% FSD
Oxygen synergism . . . . .	< 10% FSD
Repeatability . . . . .	+/- 2%
Minimum detectable Limit	300 ppb of Hexane
Measuring ranges (ppm), 5 ranges, automatically adjusting . . . . .	0-10,100, 1.000, 10.000, 100.000,
Analog outputs . . . . .	0-2 VDC
Display . . . . .	Bar graph, 4 digit, 7 line back lit LCD
Sample flow rate . . . . .	approx. 1.200 cc/min nominal
Alarms . . . . .	Low, high
Fuel gas . . . . .	99.995% hydrogen (or better)
Fuel consumption 100% H <sub>2</sub>	approx. 26 ml/min
Portable operation time with 1 fuel charge . . . . .	< 24 hours
Portable operation time with 1 battery charge . . . . .	16 hours with display back light off, 8 hours with back light on
Ambient temperature . . . . .	5-40°C (41-104°F)
Nominal Dimensions (W x D x H) . . . . .	13.8" (330 mm) x 10" (254 mm) x 3.2" (80 mm)
Weight, including fuel storage container . . . . .	5.5 kg (11.5 lb.)
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	
TT-20	Soft material carrying case
AZM-202	Automatic flame ignition and re-ignition
GFS-20	Simple straight probe with 2 micron reusable stainless disc filter
EFS-20	Enhanced filter probe with 2 micron reusable stainless disc filter and digital data readout
TRS-20	Light weight aluminum supported backpack
<i>Availability of options may change unannounced</i>	



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