

## Precision Vapor Generator

### Product Description

MicroFab has expanded its developments in vapor generation for olfaction to the generation of vapors for calibrating explosives detectors, or other trace-vapor detectors. A digitally controlled ink-jet dispenser ejects minute amounts of a dilute standard solution which is rapidly converted into vapor upon deposition onto a heater. The amount of vapor delivered to the detector is controlled by the number of drops (dose mode – specified number of drops) or the frequency of the droplet generation (continuous mode – droplets generated continuously at set frequency). The vapor generator can be used to quantify the detection limit of trace-vapor detectors in the field or in the lab during development.



### Standard Features

- Drop-on-demand (DOD) ink-jet dispensing of the explosive solution.
- JetDrive™ V board with bipolar, sine, and arbitrary waveform modes.
- CCD board based integrated camera for drop and heater observation.
- Glass reservoir for the explosive solution.
- Output trigger for integration with other equipment.
- Software controlled temperature: elevated base value and up to four ramps followed by constant values.
- Software controlled backpressure for DOD dispensing.
- Collection vial for maintenance or calibration.
- Software controlled mass flow regulator for the carrier gas.

## Applications

- Evaluation of explosives and other trace-vapor detection technologies under development
- Calibration and testing of trace-vapor detectors as part of detector manufacturing
- Field calibration and testing of trace-vapor detectors
- Testing the interaction of multiple materials on trace-vapor detectors
- Olfaction threshold determination

## Output Characteristics

- Dose mode or Continuous
- Level controlled by the number of drops (dose) or frequency (continuous) and carrier gas flowrate
- Flow controlled to accommodate different explosive detectors
- Vapors of any explosive that can be put in solution; tested TNT, RDX, PETN
- Three orders of magnitude dynamic range

## Specifications

Main components	Standard
Jet Drive Electronics Board	JetDrive V embedded: Bipolar, Sine, & Arbitrary Waveform modes
Operating Frequency	Up to 30kHz
Vapor Generation Modes	Dose mode (set number of drops); Continuous mode (set drop generation frequency)
Pneumatics Control	Software control of the pressure above the dispensed solution -0.5 to 0.5Psi
Mass Controller for Carrier Gas	Software controlled; Two options available with maximum range: a) 50 cc/min or b) 5 L/min
Heater	Fast response heater with ramps of up to 250°C/sec
Temperature Control Board	Software controlled with programmable temperature profiles
Computing Hardware	Laptop, 733Mhz processor, 512MB RAM, 40+ GB hard drive, CD-ROM, Ethernet, 2 uncommitted USB 2.0 ports)
Visualization	Integrated PC board camera for jet setup
Dispensing Device	MJ-AT-01-xxxx low-temperature device; Selectable orifice size

