

Model 2500 Fluorescence Mercury Detector



Electronic Flow Adjust Model shown

The **Tekran[®] Model 2500** is a Cold Vapor Atomic Fluorescence Spectrophotometer (CVAFS) elemental mercury detector. The advantages of atomic fluorescence over more traditional atomic absorption (AA) techniques are well known. They include: very high sensitivity, superior immunity to false positive responses, and inherent linearity. This high sensitivity, high stability detector is specifically designed to provide precision analysis of all types of mercury samples. It can be used with any method and apparatus capable of generating elemental mercury vapor in an inert gas stream. The **Model 2500** is compact, inexpensive, and has a number of features that provide greatly improved performance over other CVAFS and AA detectors.

High Stability Excitation Source

The excitation source for the detector is a long life, low pressure analytical grade UV lamp. High frequency drive electronics and two stage voltage regulation render lamp output totally impervious to line voltage noise and fluctuations. Thermal stabilization and closed loop control of lamp output ensure constant excitation level.

Optical Path Purge

The presence of oxygen and ozone precursor species in laboratory air results in the absorption of UV radiation within the optical path of most detectors. The **Model 2500** incorporates an enhanced **OPPS** (Optical Path Purge System) that displaces room air and greatly increases long term detector stability.

Low Noise Electronics

Low noise, high stability electronic components result in wide dynamic range and increased sensitivity.

Carrier Flow Regulation

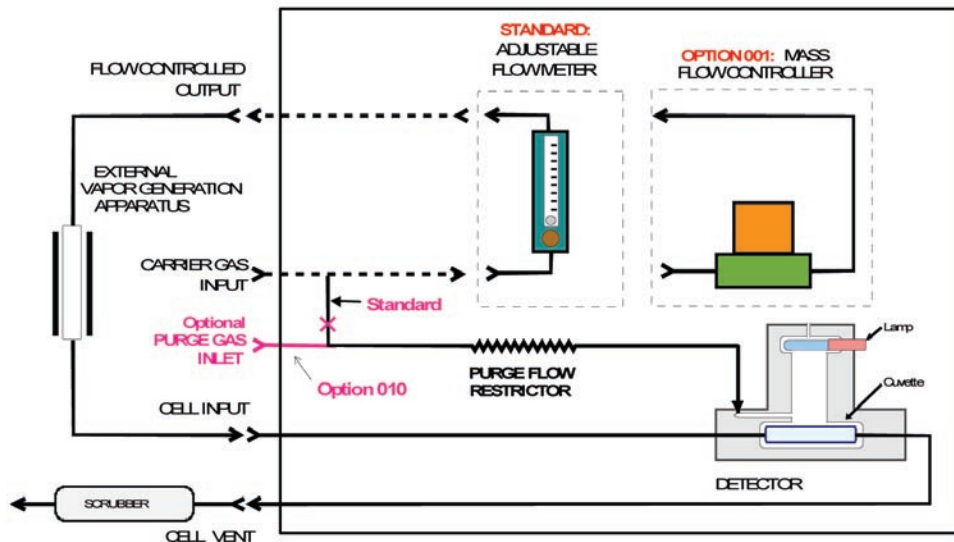
The **Model 2500** comes standard with an adjustable ball flowmeter. For applications where more accurate carrier flow control is required, the detector is available with an optional precision mass flow controller, electronic flow rate adjustment and digital flow display. This option allows remote control and setting of carrier flow rates via rear panel connections.

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Specifications

- Detection Limit**
- < 0.1 picogram Hg
- Output**
- Range: 0 to +1, +5 or +10 volts, internally selectable
 - Time Constant: 0.1 to 2 seconds, internally selectable
- Excitation**
- Low pressure analytical mercury lamp with high frequency drive and thermally controlled housing. Closed loop controller provides constant output at 253.7 nm.
- Detector**
- Photomultiplier system with 253.7 nm interference filter and integral magnetic shield
- Displays**
- Front panel 4½ digit detector output display (0 - +1.9999 V)
 - **Std:** Ball flowmeter (0 - 100 ml/min)
 - **Opt:** Mass flow meter with digital panel meter (0 - 200 ml/min)
- Displays**
- **OFFSET** – Ten turn locking potentiometer with readout
 - **SENSITIVITY** – Ten turn locking potentiometer with readout
 - **CARRIER** – **Std:** Needle valve flow rate adjustment
 - **Opt 001:** Electronic 10 turn flow adjustment
- Carrier Gas**
- Argon (Helium possible with Option 010)
- Optical Purge**
- ~10 ml/min Argon. (Nitrogen possible with Option 010)
- Physical**
- Size: 5.25" H x 8.5" W x 16.75" D (135 x 215 x 425 mm)
 - Weight: 16 lb (7 kg)
 - Electrical: 100-120 or 220-240 VAC, 50-60 Hz, 50 VA max.

Flow Diagram



Options

- **Opt. 001** Replace ball flowmeter with mass flow controller, electronic flow adjustment and digital front panel display.
- **Opt. 010** Separate purge gas inlet.
- **Opt. 1xx** Operation at alternate carrier inlet pressure. (xx is desired pressure in PSI, range 10 thru 50. Standard detector is optimized for 30 PSI.)
- **Opt. 220** 220-240 VAC operation.



North American Sales and Service
230 Tech Center Drive
Knoxville, TN 37912
Phone: 1-865-688-0688
Toll Free: 1-888-3TEKRAN
<http://www.tekran.com>
sales@tekran.com