

Model 2505 Mercury Vapor Primary Calibration Unit

- Suitable for field or laboratory use
- Thermo electric temperature controller: no water bath required
- Operates from 12 VDC or line power
- Precision temperature measurement with digital display. Resolution: .001 °C
- Built in serial port allows logging of injections, temperatures and other instrument parameters.
- **Hamilton**[®] Digital Syringe[™] may be used to provide accurate, NIST traceable injection volumes
- Microprocessor automatically calculates amount of mercury injected based on either measured or user entered temperature



The **Tekran**[®] **Model 2505** is a portable mercury vapor injection source for use in applications where a precisely known amount of mercury must be delivered for the calibration of analytical systems. The unit is based on the principle that the vapor pressure of mercury is a well known function of temperature. If the temperature and volume of an injection are known, the amount of mercury delivered can be determined with high accuracy. For this reason, vapor phase injection has become the de facto standard method of system calibration for ultra-trace mercury analytical systems.

This unit greatly simplifies the process of calibration via injection. It provides precise control of the reservoir temperature using a thermo electric cooler. This eliminates condensation within the syringe, resulting in highly reproducible injections.

When powered externally (either by the line adaptor or a 12 VDC source), the chamber may be cooled. An internal battery pack provides sufficient power to run the unit in **Low Power** mode for up to 12 hours. In this mode, the cooler is deactivated and the system operates as a conventional source. The high accuracy temperature display and all other functions remain available.

The vapor pressure of mercury is a sensitive function of temperature, the increase in concentration being in excess of 8% per degree Celsius. The **Model 2505** incorporates a second temperature sensor located within the chamber for precise mercury vapor determination.

A built in RS-232 serial port provides continuous logging of temperatures, a record of each injection, and a listing of all instrument set points.

The **Model 2505** is an ideal primary standard for the Tekran **Model 2537A** Mercury Vapor Analyser or any other application requiring vapor phase calibration.

Microprocessor

Internal microprocessor with LCD and direct access keypad allows easy activation of all functions. Some of the functions available are:

- Measurement and display of mercury chamber temperature
- Temperature control of the cold block containing the chamber
- Input of injection volume. Volume may be input manually via the keypad or read directly from suitably equipped Hamilton® digital syringes¹ (On syringes equipped with serial interface only)
- Automatic calculation of injection amount
- Internal battery charging and power management
- Logging of temperatures, injections and internal parameters to RS-232 serial port

Temperature Sensors

The unit contains two precision sensors, one to measure the temperature of the isothermal block and one to monitor the temperature within the vapor chamber.

- Accuracy: ±0.05 °C Resolution: .001 °C
- Range: -5 - +50 °C

Temperature Control

The aluminium block is insulated and cooled with a thermo electric cooling module. This eliminates the problems associated with constant temperature baths, resulting in a rugged, **transportable** unit. For low power applications, the cooler may be turned off. In this case the unit will function as a conventional insulated flask calibration unit. The controller characteristics are as follows:

- Range: 0 - 30 °C (Setpoint must be below ambient)
- Accuracy: ±0.05 °C (Maximum differential from ambient is 15 °C)
- Stability: ±0.01 °C

Mercury Chamber

The Teflon® mercury container is entirely enclosed within the isothermal aluminium block. A standard 3/8" (10 mm) Teflon® backed silicone septum is used.

Physical & Electrical

Rugged self-contained case, with cover and carrying handle. Suitable for lab or field use.

- Weight: 4.5 kg. Dimensions: 14 x 10 x 8½ in. (36 x 26 x 22 cm.)
- Power: 2.2 Amp Max. (12 VDC)

Syringes

- Interfaces directly with (optional) Hamilton® Digital Syringes™, allowing continuous measurement of volume and instantaneous calculation of injection amount.
- Conventional Hamilton 1700 Series gas tight syringes are also available from Tekran.
- Unit can be used with other suitable syringes.

Accessories Included

- Universal Power Supply: 100-240 VAC, 50-60 Hz.
- Automotive Adaptor Cable
- Data Logging (PC) Cable
- Septa Replacement Tool
- Replacement Septa (Pkg of 20)

Options

Hamilton® 1700 series gas tight syringes may be ordered as options for the Model 2505. All syringes supplied by Tekran come equipped with special 2¾" long, side port *removable* needles. Specify the **Option** order number for syringes required from the table below.

Capacity (µl)	Conventional Syringe	Digital Syringe
10	701	901
25 (Most Popular Size)	702	902
50	705	905
100	710	910
250	725	925
500	750	950

¹ Hamilton Digital Syringes no longer include serial I/O capability. Existing Digital Syringes with serial I/O capability may be directly connected to the Model 2505. Contact Hamilton for details.

