

Heated Gas Cell up to 200



Figure 2

This heated cell can be configured as a gas cell (Fig. 2) or for vaporizing samples that are normally solids or liquids at room temperature. Configured for gas sampling, the cell incorporates 2 valves, an inlet and an outlet, that enable flowing gas samples through the cell. In its solid and liquid vaporization configuration, the cell has an outlet needle valve from which a vacuum can be pulled and two (2) sample inlets.

One inlet is a needle septa injection port on the top of the cell which is similar to the type used in gas chromatography. There is a second inlet in the form of a side port for inserting solid samples, which also doubles as the thermocouple port. Using the side port eliminates the need to recheck vacuum seals whenever the cell is opened to insert solid samples. The 250w heating jacket extends over the end of the cell so that both the cell body and the optics are heated, and allows operation at temperatures up to 200°C. Condensation on the optics is minimized by heating them to the same temperature as the sample chamber. A type J iron constantan thermocouple is provided with plugs which are compatible with the optional temperature controller. The cell body is type 304 stainless steel and an assortment of seals is provided – silicon rubber, viton and PTFE.

Cells are factory pretested for vacuum leaks using dummy windows and then new windows are shipped with the cell. The cell comes standard with 47 x 6mm KCl windows. The clear aperture is 39mm. Other window materials are available. An optional high stability temperature controller with RS-232 computer interface and Windows® compatible software is available.



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Temperature Controller for Heated Gas Cell



The temperature controller is keypad programmable and all electrical connections and outputs are from the rear. It can control loads up to 15 amps and is available in 115 volt and 230 volt versions. Temperatures can be controlled within $\pm 0.4^{\circ}\text{C}$ or $\pm 0.1\%$ of the readout. The 230 volt version operates at either 50 or 60 hertz and is CE marked. Digital readouts are shown on an illuminated fluorescent display. There are connections for (i) and external alarm, (ii) a recorder and (iii) and RS-232 serial cable connection. In the 230 volt model there is a spare power output. There are also connections for 3 different types of sensors (i) RTD, (ii) thermistor or (iii) J, K or T type thermocouples. The unit comes with Windows[®] compatible software for use with a PC. There are both heater and instrument fuses. Programmable features include multiple profiles (9) with multiple ramp and soak segments (16 levels) per profile and high and low temperature alarms. There is an assured soak feature which means that before going on to the next programmed ramp and soak segment, the segment will be extended until actual temperature reaches the setup temperature specified in that segment. The programmed parameters can be manually overridden from the keypad. The unit is a PID controller, which allows for tuning of the Proportional Band (P), the Integral Time (I) and the Derivative Rate (D). There is also an auto tune feature, which optimizes the PID.



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