

## Dual Cell Microvolume Thermal Conductivity Detector

- Stand-alone unit
- Optimized for capillary chromatography
- Thermal stability to  $\pm 0.02^\circ\text{C}$
- Dual filaments capable of independent or referenced (differential) operation



The Valco Microvolume Thermal Conductivity Detector (TCD) is useful in a wide variety of capillary and packed column applications. Constant filament temperature control provides a linear dynamic range permitting measurement of a wide range of concentrations without the need for multiple standards or sample dilution.

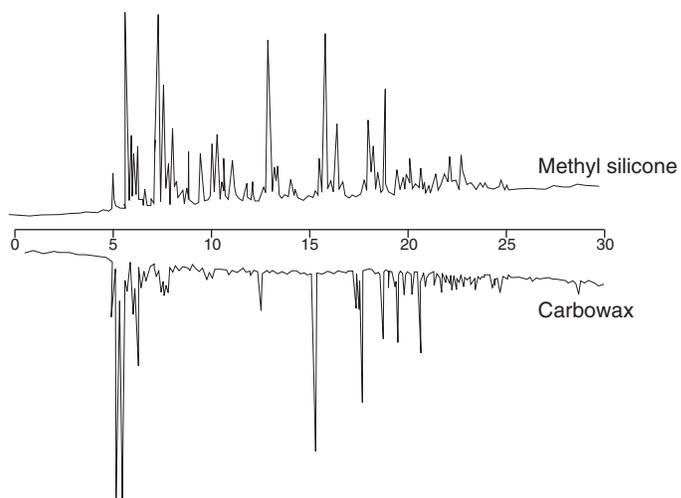
Since the detector is non-destructive of the sample and contributes virtually no band spreading, it can be used in series with other detectors without affecting the performance characteristics of either.

### Description

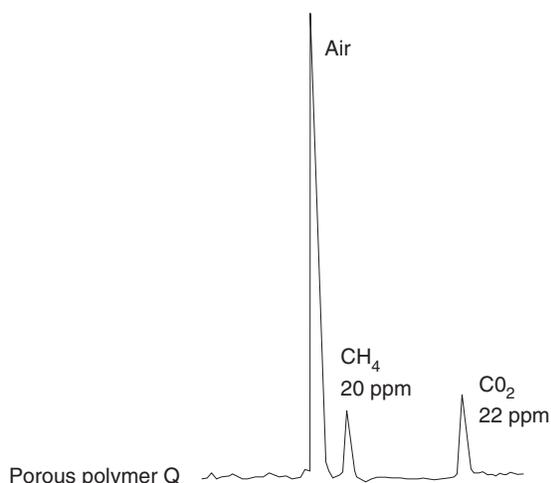
The detector consists of the cell housing and the electronics controller. The cell design permits mounting in virtually any orientation with no effect on performance. It can be installed easily on virtually any gas chromatograph, comprising a stand-alone unit requiring nothing else for operation but carrier gas flow.

Each of the two cell chambers is independent of the other, except for block temperature. Filaments can be replaced individually. Front panel controls set the temperature (up to  $400^\circ\text{C}$ ) for the cell and for each filament. Since each detector cell can be operated separately or simultaneously, two analyses can be run using a single Valco TCD.

To insure compatibility with any system, two outputs are provided: 0-1 mV full scale attenuated output for recorders, and 0-10 V full scale unattenuated output for integrators and data acquisition systems.



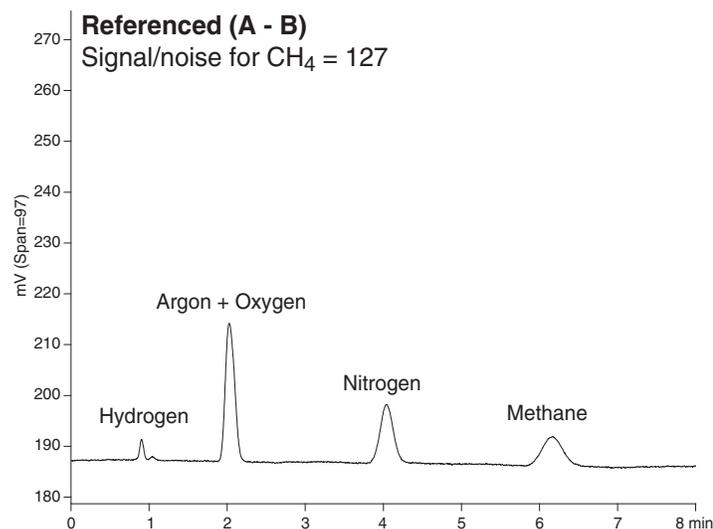
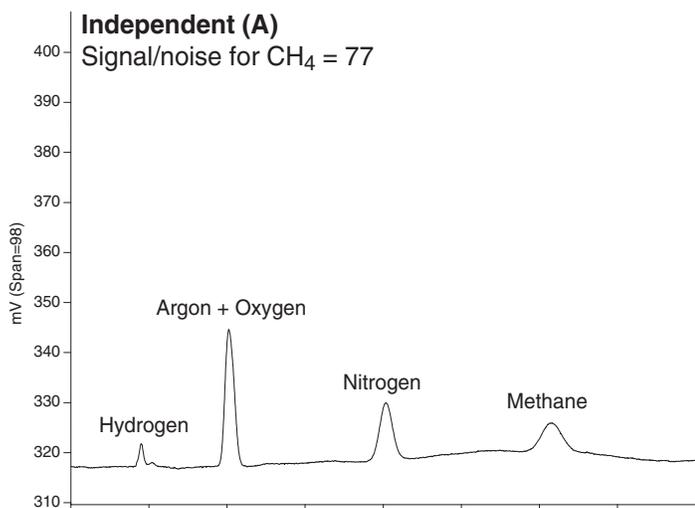
**Unleaded Gasoline**  
50 m x 320 micron columns, 0.06  $\mu\text{l}$  valve injection



**Gas Standard**  
30 m x 530 micron PLOT column, 100  $\mu\text{l}$  valve injection

## Independent vs. referenced operation

## Specifications



### Helium Blend

Sample size: 250 µl  
 Sample concentration: 100 ppm each  
 Column: 10' x 1/16" OD x 0.040" ID  
 Molesieve 5Å, micropacked  
 Column temp: 65°C  
 Detector temp: 100°C  
 Filament temp setting: 5.0  
 Flow rate  
 Channel A: 5.5 ml/min  
 Channel B: 5.42 ml/min

### Overall

Linear range ..... 1 nanogram to 3 micrograms nC<sub>4</sub>  
 Minimum detectable ..... approx. 50 picograms n-butane quantity  
 Time constant ..... < 150 milliseconds  
 Cell temperature ..... Automatic proportional control with control ±0.02°C stability  
 Maximum cell ..... 400°C temperature

### Detector assembly

Dimensions ..... 3.12" x 6" x 3.75" high (8 cm x 15 cm x 9 cm)  
 Gas connections ..... Valco 1/16" zero dead volume fittings  
 Single multi-pin ..... 5 foot cable supplied connector

### Control unit

Dimensions ..... 12" x 8" x 5" high (30 cm x 20 cm x 13 cm)  
 Electrical connections... Single multi-pin connector  
 Operator controls ..... Cell temperature control (40-400°C)  
 10-turn filament temperature potentiometers (A & B)  
 10-turn coarse and fine baseline adjustment potentiometers (A & B)  
 12 position recorder attenuator output switch (A, B, or A-B)  
 Filament power on/off switch  
 Indicator LEDs ..... Detector heater "on"  
 Filament power "on"  
 Power requirements ..... Universal 100-250 VAC  
 50/60 Hz, 100W maximum

## Product numbers

	110 VAC	230 VAC
Dual cell microvolume TCD with:		
nickel/iron filaments	TCD2-NIFE	TCD2-NIFE-220
tungsten/rhenium filaments	TCD2-WRE	TCD2-WRE-220