

# 5350 PID/ELCD

TANDEM PHOTOIONIZATION / ELECTROLYTIC CONDUCTIVITY GC DETECTOR

**The 5350 Tandem PID/ELCD is a combination detector coupling a 4430 Photoionization Detector with a 5320 Electrolytic Conductivity Detector. With the detectors in tandem, simultaneous detection of aromatic and halogen compounds is possible, eliminating the need for two separate analyses. This unique design eliminates transfer lines and uses only one detector port. Both detectors can be used independently, if desired. The 5350 PID/ELCD is available for installation on most GC manufacturer's instruments.**



## Operating Principle

A sample eluting from a capillary GC column is introduced into the PID where the olefins and aromatic compounds are detected. Immediately upon exiting the PID, the effluent is swept into the ELCD where halogenated compounds are detected. These two detectors in tandem are used for the determination of volatile organic compounds (VOCs) as specified in USEPA methods.

## PID/ELCD Capabilities

- Unique tandem design eliminates need for transfer lines and minimizes dead volume
- Tandem detector design uses only one GC detector port
- Unique UV lamp Window Sweep™ design minimizes fouling of window surface
- Exclusive Lampsaver™ circuit turns PID lamp off (if desired) after a specified period when not in use, to improve lamp life
- ELCD employs a quick-change, disposable deionizing resin cartridge
- Reactor design uses brass and graphite/VespeI® ferrules instead of solid graphite ferrules
- Programmable ELCD solvent venting using GC timed-event relay

## Principal Applications

- USEPA Methods (502.1, 502.2, 503.1, 601, 602, 8010, 8020, 8021)
- Aromatics
- Olefins
- Halocarbons
- Solvents
- Hazardous wastes

# 5350 PID/ELCD SPECIFICATIONS

## 4430 PID Specifications

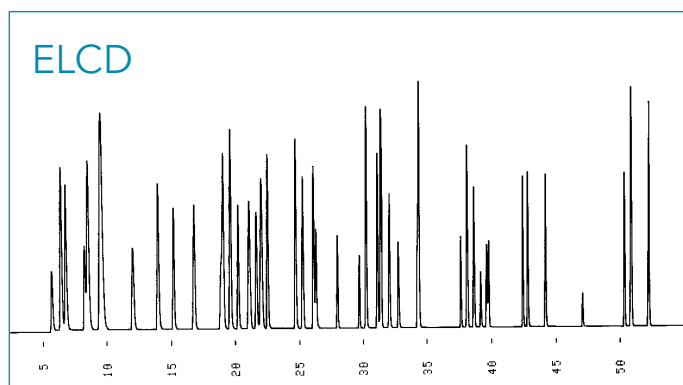
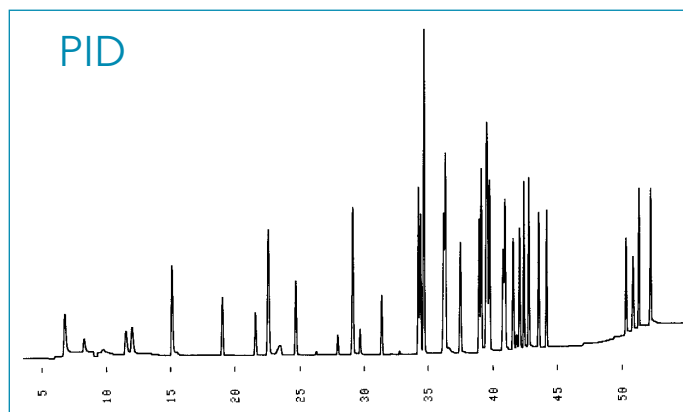
<b>Dynamic Range</b>	> 10 <sup>6</sup>
<b>Linear Range</b>	> 10 <sup>6</sup>
<b>Sensitivity</b>	> 40 pg Benzene
<b>Maximum Operating Temperature</b>	250 °C
<b>Lamp Current</b>	0-1.60 mA (in 9 steps)
<b>Lampsaver Time</b>	0.5-2 hr, reset by external contact
<b>Patent</b>	The 4430 PID is protected under U.S. Patent number 4,804,846.
<b>Gas Requirements</b>	Helium (99.999%)
<b>Lamp Power Supply Power Requirements</b>	105-240 V <sub>AC</sub> (±10%) 47-63 Hz
<b>Lamp Power Supply Weight</b>	2.5 kg (5.5 lb)
<b>Lamp Power Supply Dimensions</b>	5.75" H x 2.75" W x 9.0" D

## 5320 ELCD Specifications - Halogen Mode

<b>Detectable Mass</b>	
Maximum*	1 pg lindane
Maximum	5 µg lindane
<b>Dynamic Range</b>	5 x 10 <sup>6</sup>
<b>Selectivity</b>	Cl/HC > 10 <sup>6</sup> Cl/N > 10 <sup>5</sup> Cl/S > 10 <sup>5</sup>
<b>Reactor Temperature</b>	
Range	800 - 1,100 °C in 100 °C increments
Stability	± 1 °C
<b>Solvent Flow</b>	Adjustable on the cell amplification board
<b>Solvent Flow Range</b>	0-200 µL/min
<b>Solvent Vent Valve</b>	Controlled by GC-timed event relay
<b>Gas Requirements</b>	H <sub>2</sub> (99.999%) Halogen Mode
<b>Detector Controller Power Requirements</b>	90-260 V <sub>AC</sub> (±10%) 47-63 Hz, 200W
<b>Detector Controller Weight</b>	3.8 kg (8.4 lb)
<b>Detector Controller Dimensions</b>	8.25" H x 5.0" W x 12" D

\* Minimum Detectable masses were obtained under optimal operating conditions.

## PID and ELCD chromatograms of USEPA Method 502.2 standard, 5 ppb of each component



### Standard

5 ppb each in 5 mL H<sub>2</sub>O

### Gases

10 mL/min (He) Carrier  
20 mL/min (He) Makeup

### Oven

35 °C for 10 min, to 200 °C at 4 °C/min, hold at 200 °C for 10 min

### Eclipse Sample Concentrator

Standard EPA Method 502.2, Tenax®/Silica/Charcoal Trap (#9 Trap)

### Column

Rtx® - 502.2, 105 m x 0.53 mm I.D. x 3.0-µm film thickness

### Note

Performance is affected by several factors, including GC, column, electrolyte, gas flows, and compound class.



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