



Environmental Environmental Pollutants Analyzers



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Some of the millions of gallons of chlorinated solvents used in industry over the years have spilled, polluting our air, soil, rivers, lakes, streams, and ground water. Environmentally conscious legislation has been passed in many parts of the world to limit future spills, clean up existing polluted sites, and lessen the overall risk to ourselves and to our children. DPS has configured a full range Environmental GC analyzers to assist in the detection of common pollutants. All of these Environmental GC Systems allow direct injection of sample extracts. However, DPS has also added a built-in Air Concentrator and Purge & Trap for low ppb level analysis of air, water, or soil samples all in one GC. The Series 600 GC is for analyses in the lab, or the Portable Companion 2 GC Systems are for analyses right where the samples are taken. The FID detector is sensitive to hydrocarbons, which can assist in defining the source of the pollutant, the PID is very sensitive to aromatics such as Benzene, and the BCD is ultra-sensitive to chlorinated compounds. A combination of detectors covers most environmental methods. All DPS GC systems are small, lightweight and modular for expandability, upgrades, and easy service.



Series 600 GC

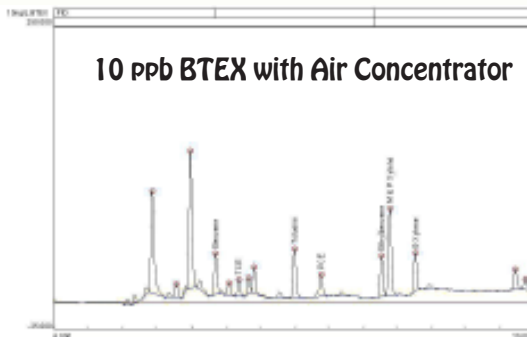
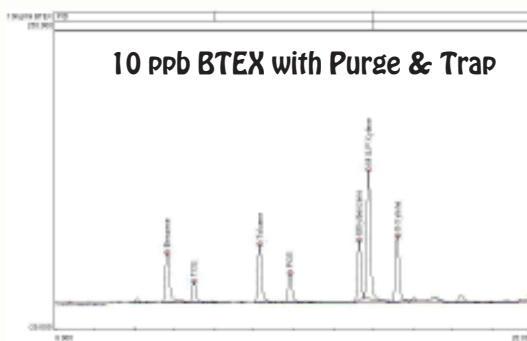
Available Configurations Include:

600-C-014 - Series 600 Environmental GC Analyzer (FID, PID, BCD, 2 x 30m, Air and Purge & Trap Concentrators)

500-C2-014 - Companion 2 Portable Environmental GC Analyzer (PID, BCD, 30m Air and Purge & Trap Concentrators)



Companion 2 Portable GC
(With Purge & Trap and
Air Concentrators)



PID Detector
 Detector Temperature = 150C
 High Voltage = 600V
 Gain = 3
 Collector = -100V
 Valve = 100C
 Carrier = Helium @ 40 kPa = 10mls/min
 Column = 30m x 0.53 MXT-624
 Temperature Program = 60C (hold 9 min) to 150C @ 10C/min

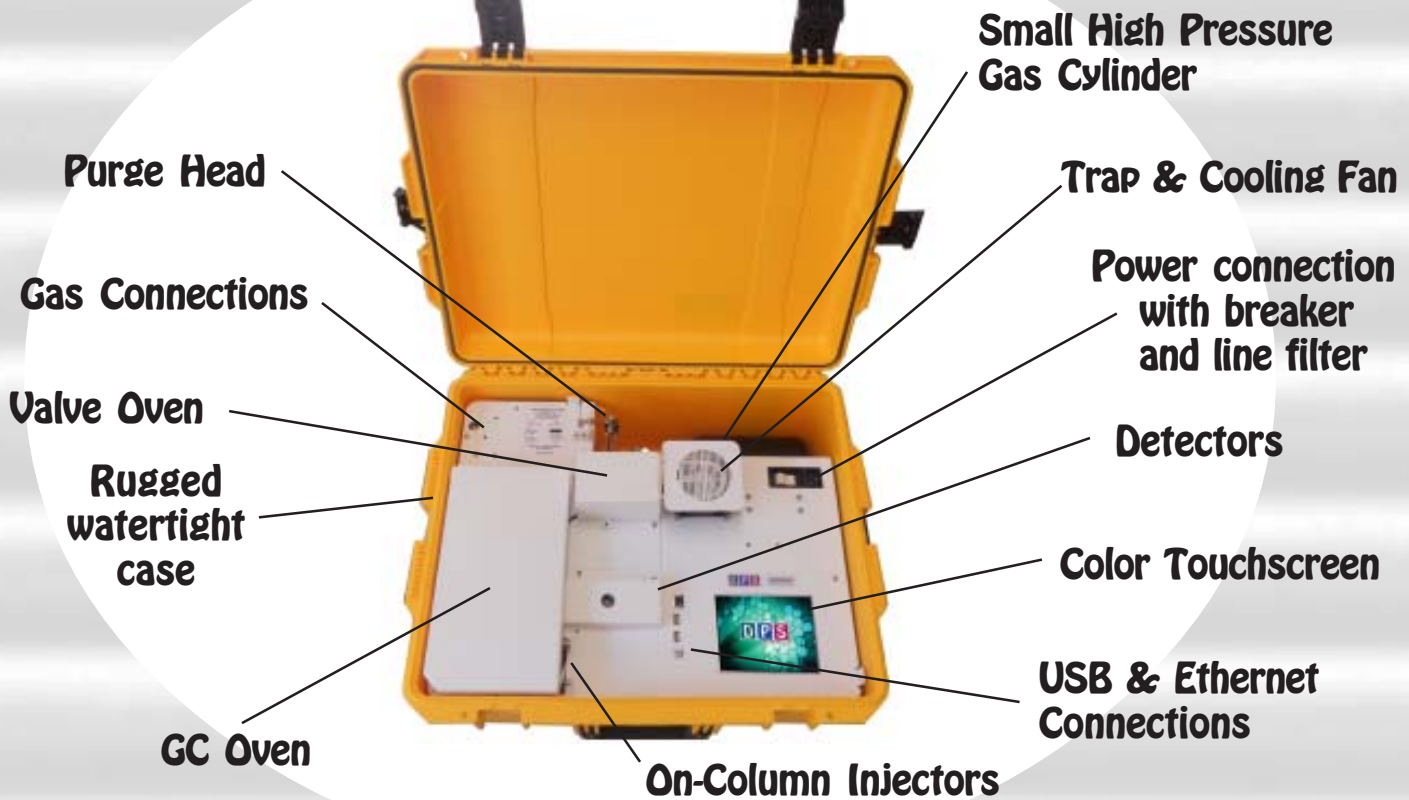
Peak	Component	Area	Conc
1	Benzene	305.0	10.8
2	Trichloroethylene	105.3	10.6
3	Toluene	306.7	10.5
4	Tetrachloroethylene	162.0	10.5
5	Ethylbenzene	301.7	10.2
6	M & P Xylenes	686.6	20.2
7	O-Xylene	351.5	10.8

Peak	Component	Area	Conc
1	Benzene	296.1	10.2
2	Trichloroethylene	89.9	10.6
3	Toluene	288.6	11.0
4	Tetrachloroethylene	146.9	11.1
5	Ethylbenzene	287.1	10.2
6	M & P Xylenes	621.5	20.5
7	O-Xylene	278.6	9.7

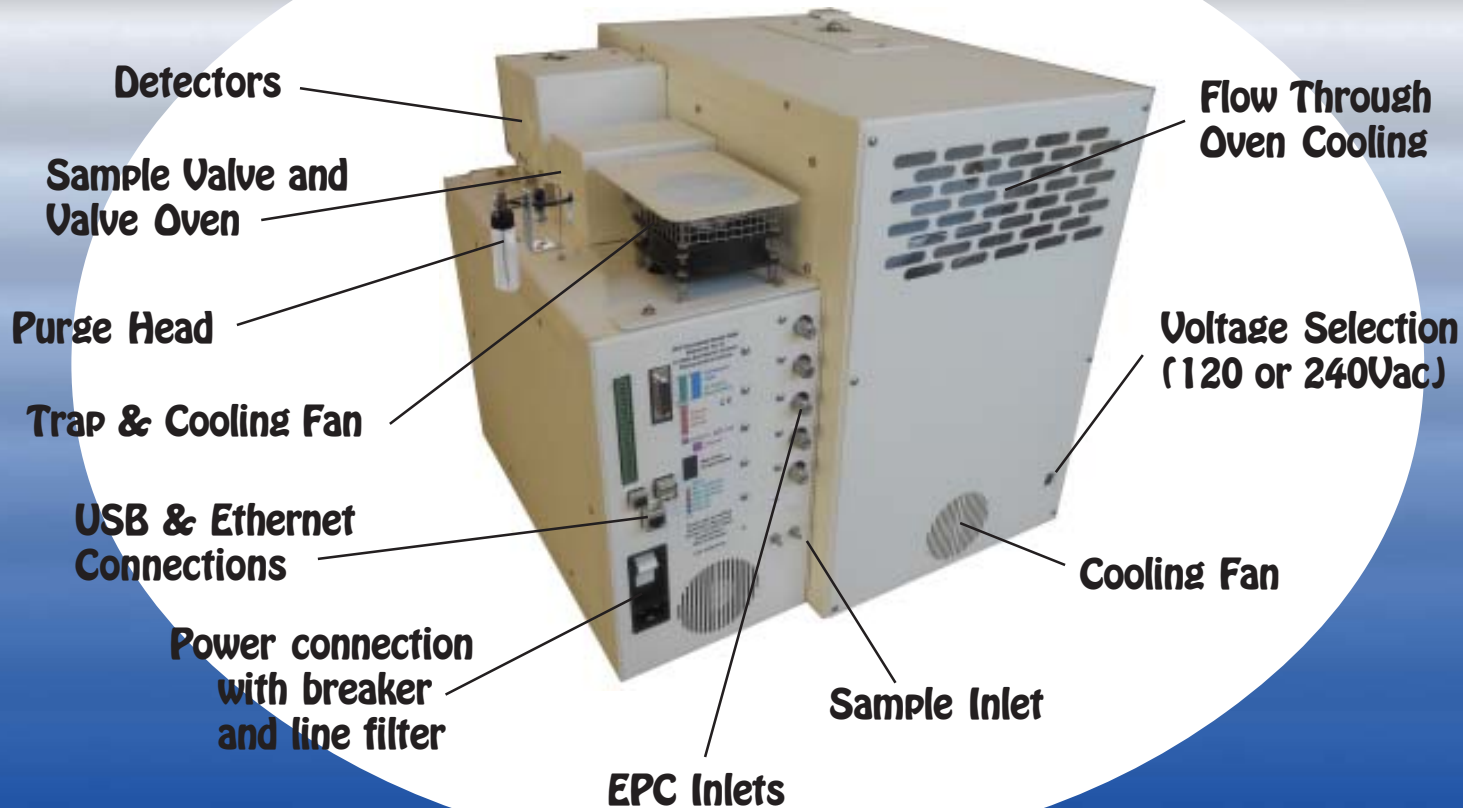
11/2015
 Specifications may change without notice.

DPS Environmental GC Layouts

Companion 2 GC



Series 600 GC



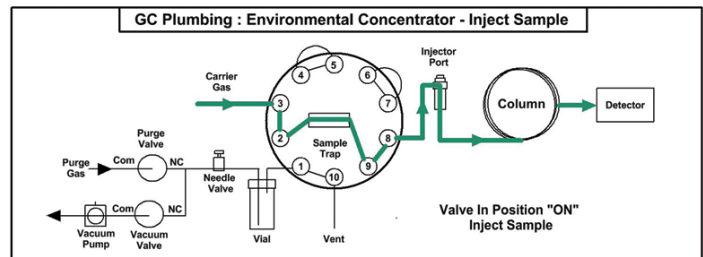
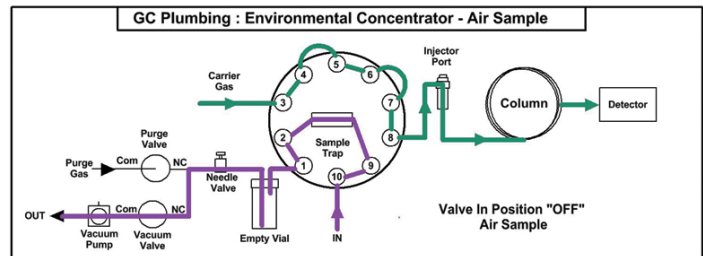
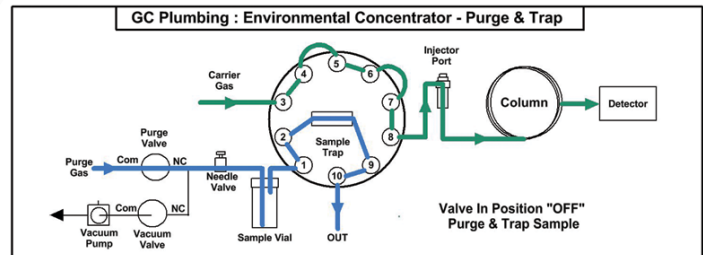
Plumbing Diagram

Sample Concentrators: Both the Purge & Trap Concentrator and Air Sample Concentrator are built right into the GC Chassis to provide both a compact portable sample concentrator and a shortest possible sample path. The valve and sample lines are heated creating a inert sample path. There is no need to change any plumbing to switch between analyzing water, or air samples. Simply loading a different GC Method in the DPS Control Software is all that you have to do. Both Sample Concentrators use the same flow control valve to precisely meter the amount of sample loading on the Trap.

Load Water Sample: The water sample is purged with inert gas to extract the sample compounds and load them onto the Trap. The entire sequence of the Purge & Trap Concentrator is automated through the Timeline of the DPS Control Software for the analysis of one sample at a time.

Load Air Sample: The vacuum pump draws the sample from the inlet through the Trap and then to the flow controller and pump to limit any possible cross contamination between samples. The entire sequence of the Air Sample Concentrator is automated through the Timeline of the DPS Control Software for the analysis of one sample, or the system can be set up to run unattended 24/7, collecting and analyzing samples every hour, or so.

Inject Sample: No matter how the sample was loaded on the Trap, the carrier gas sweeps the components from the trap to the analytical column.



Built-in Combination Purge & Trap Concentrator, & Air Concentrator Plumbing Diagram

Results, Data & Connectivity

Results: In this unique plumbing configuration, which utilizes the same sample flow path and precision metering, you get the same peak areas on the chromatogram no matter which source the sample comes from. The results presented on the first page demonstrate this. A BTEX standard was spiked into clean water for the Purge & Trap analysis and the same standard was spiked into a 1L Tedlar bag containing room air for the Air Analysis. Since 10 nanograms of each component are loaded on the Trap in each case, the detector responds with the same value.

Data and Connectivity: The built-in computer is used to collect and store the data. Data can also be copied to a USB Stick to transfer to another computer. Data can be transferred from the built-in computer to another computer on the LAN through the Ethernet port using standard Windows protocols. Or, we can use a USB cable to connect the GC to the remote computer where the data can be collected and stored on that hard drive.

Environmental GC Specifications:

Electronics Module:

- Enter and store GC Methods via Color Touch Screen
- Actual and set-point display of all GC parameters
- Safety Limits on all user entered parameters
- Oven Temperature Programs (OTP) with Multiple Ramps
- Pressure Programs for Carrier Gases with Multiple Ramps
- Timeline for sequencing Relays and Valve
- Detector Control of all Parameters on one page
- Electronic Pressure Controllers (EPC's):
 - Atmospheric Pressure & Temperature Compensation
 - EPC Pressure Control with 0.1 kPa set-point resolution
- Plug and Play GC Control, Oven, and Detector Board
- Microprocessor Controlled
- Proprietary Digital Signal Processing
- Digital Signal Outputs for each Detector
- Universal voltage input (85 – 240 Vac) with line filter and breaker.

Detectors:

FID – Flame Ionization Detector
PID – Photoionization Detector
BCD – Bromide Chloride Detector

- 400 °C Temperature Limit with 0.1 °C set-point resolution
- 24-bit Digital Outputs for the detector via USB
- EPC Pressure Control with 0.1 kPa set-point resolution

Columns:

15m, 30m, or 60m Capillary Columns

Results:

Automatically calibration corrected and reported

Series 600 Oven Module:

- Ambient to 400°C Column Oven
- Up to 100 °C per/min Oven Ramp
- Fast Cooldown 300 °C to 50 °C in 3.5 min
- 1000 watt total Heater Elements
- Temperature Ramps with 0.1 °C set-point resolution
- 23 x 23 x 20 cm area for Glass, SS, or Capillary Columns

Companion 2 Oven Module:

- Ambient to 325 °C Column Oven
- Up to 80 °C per/min Oven Ramp
- Fast Cooldown 300 °C to 50 °C < 4 min
- 200 watt Heater Element
- Temperature Ramps with 0.1 °C set-point resolution
- 12.5 x 10.5 x 12.5 cm area for Packed, or Capillary Columns
- 7 amps at 48 Vdc total power consumption

Built-In Accessories:

- Purge & Trap Sample Concentrator
- Air Sample Concentrator
- Air Compressor for FID's

Injectors:

- Cool On-column Injectors
- Heated On-column Injectors
- Split/Splitless Injectors
- Multiple Pressure Ramps with 0.1 kPa set-point resolution

Data Communications:

- Bi-directional communication with popular Data System

Network Connectivity:

- Enterprise Compatible Network GC running Windows XPe
- Ethernet Connection using Windows Network Protocol
- On Board ETX Computer for GC Control and Data Acquisition
- Remote Control of GC and Data Acquisition over LAN



*Lab Quality Analyses in the Field,
"It Goes with you Anywhere!"*