

After years of development and testing, DPS Instruments is pleased to present the newest, most expandable and versatile Gas Chromatography Systems in history. The DPS 600 Series GC systems are the world's only modular GC systems. GC Modules can be mixed to and matched to make 100's of application specific configurations for any GC method! With 7 detectors to choose from, on-Column and Split/Splitless injectors, built-in Sample Concentrators, and an Autosampler interface, we boldly say, "If you can dream it, we can build it!"

The DPS 600 Series GC Systems are a new kind of GC. They contain a state of the art space saving chassis at their core. Our plug-and-play modular components allow for unprecedented performance, which makes all of our GC Systems easier to build, maintain, and upgrade in the field. The intelligence of the 600 Series GC Systems are locked safely in microprocessors, where our proprietary Digital Sample Processing routines control the temperatures and gas pressures to tighter tolerances than ever before and DSP is what makes our Soft Landing ever so soft.

The DPS 600 Series GC specifications are on par with the biggest selling GC's in the market, yet they are smaller, lighter, faster, more intelligent, and have delightful pricing.

**Environmental  
Petrochemical,  
Pharmaceutical,  
Foods & Flavors,  
Chemicals,  
Personal Care,  
Forensics,  
...and more!**

### **General Specifications:**

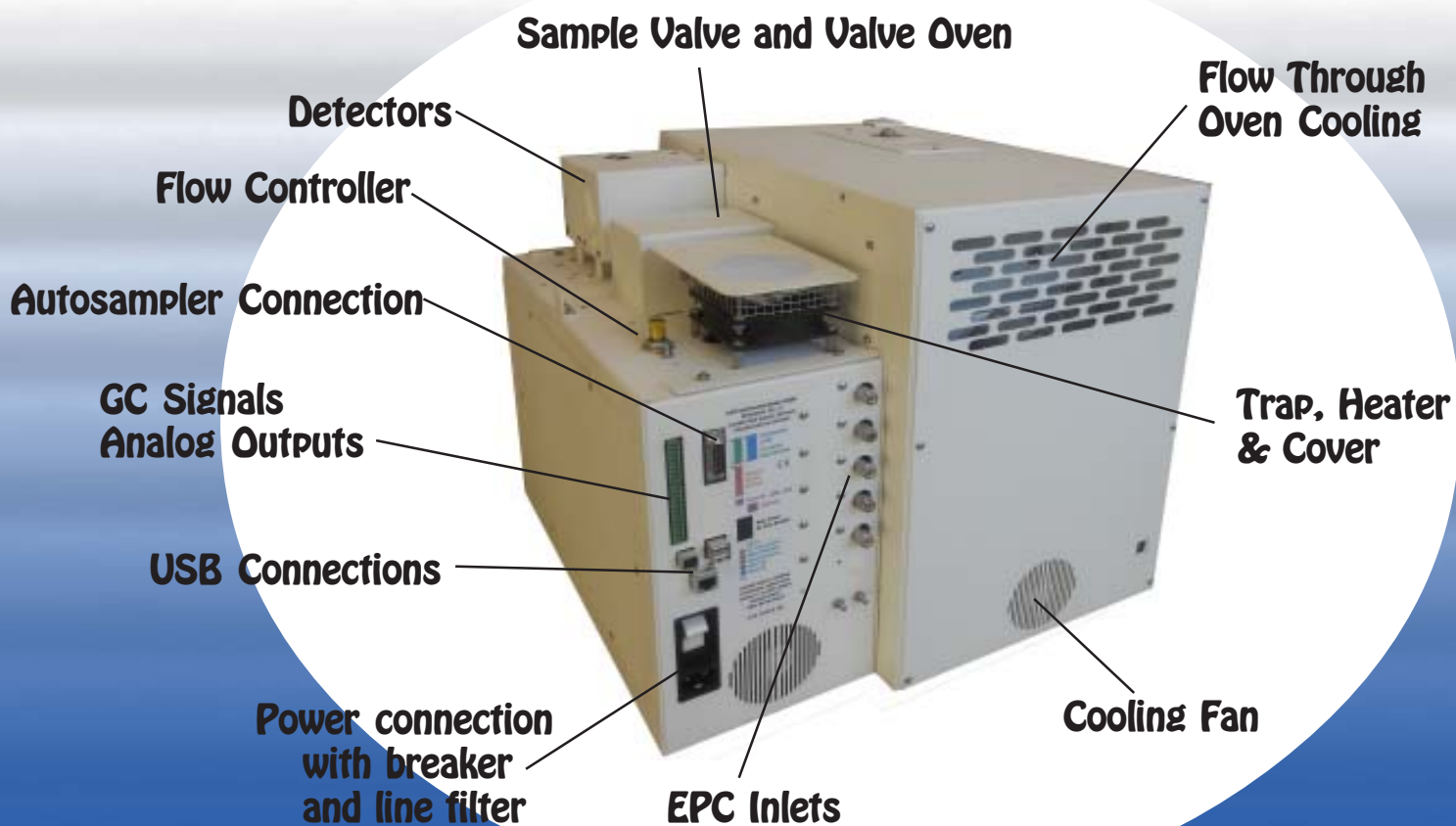
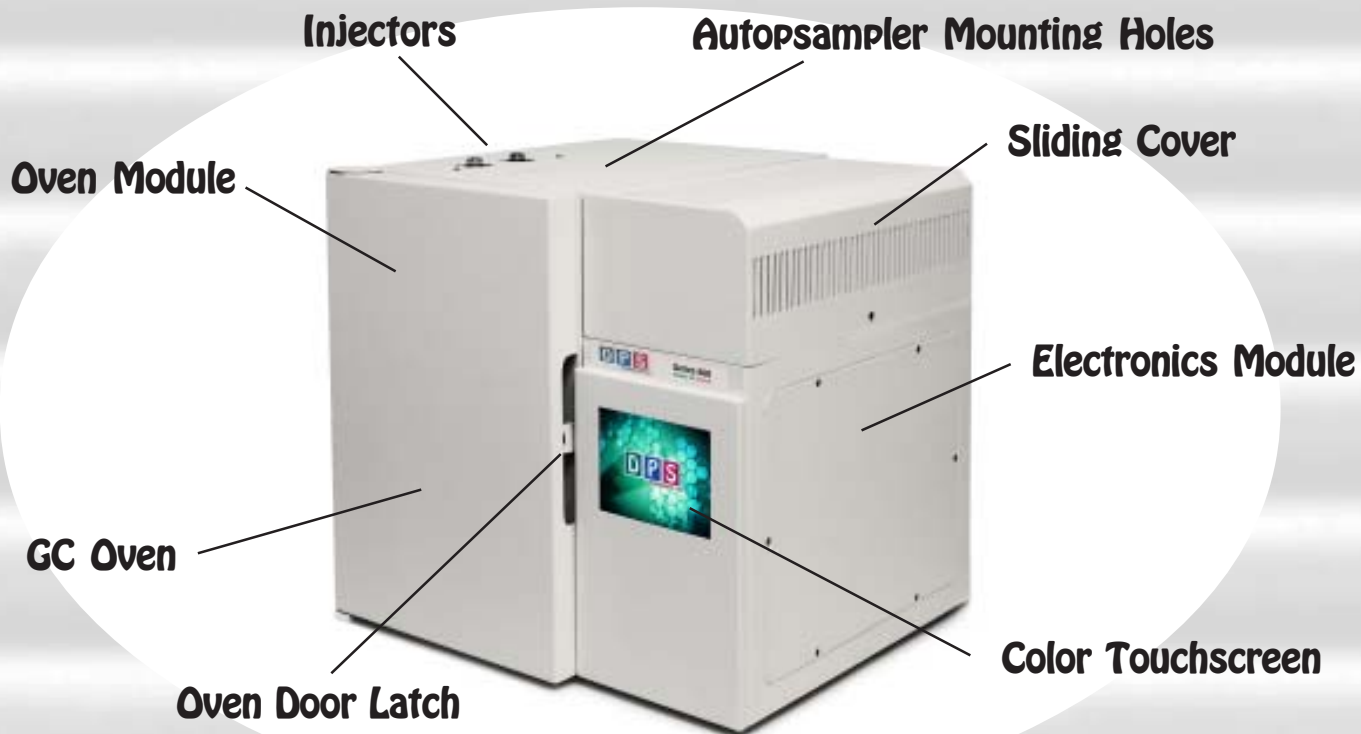
- Expandable Modular Design
- 100's of Standard Application Specific Configurations
- Wind Tunnel Oven and Soft Landing
- Color Touch Screen Instrument Control
- Free standing operation with on-board GC Methods
- Proprietary Digital Signal Processing
- Built-in Instrument Diagnostics
- Temperature Control to 0.001 °C
- EPC Pressure Control to 0.001 kPa
- Ambient to 450 °C Column Oven
- Up to 100 °C per/min Column Oven Ramp
- Fast Cooldown 300 °C to 50 °C in < 4 min
- Compact and Lightweight,  
(45 x 45 x 45 cm), approximately 25 kg



**DPS Series 600 GC**

**D P S**  
Instruments, Inc.

# DPS Series 600 Layout

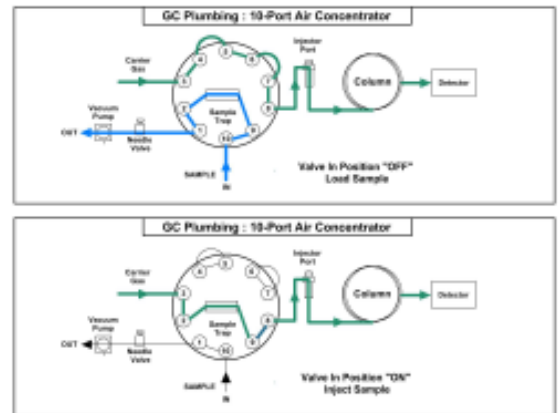


# Sample Concentrators

**Air Concentrator** - The air concentrators for Series 600 GC's are built right in 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. The sample trap is plumbed in a true backflush fashion and the sample trap also can be equipped with a variety of packing materials to achieve the best concentration of the compounds being analyzed. The sample is loaded with the built-in vacuum pump and regulated with a variable flow controller for consistent sample trapping. 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.

**Load** - 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.

**Inject** - The carrier gas sweeps the components from the trap to the analytical column.



**Air Concentrator Plumbing Diagram**

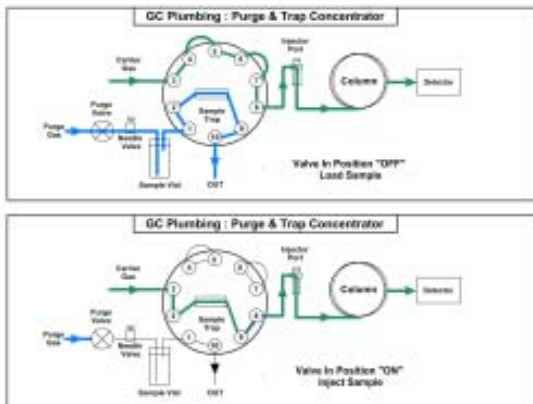
Change Vials through Cover



**Purge & Trap Concentrator** - The Purge & Trap Concentrator for Series 600 GC's are built right in with the same Trap features as the Air Concentrator. The water sample is purged with inert gas to extract the sample compounds and load them onto the Trap. The Purge Gas is regulated with a variable flow controller for consistent sample trapping. 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** - The Purge Valve turns ON to start the stream of gas flowing to the Purge Vial. With this configuration the flow controller is up stream from the Trap to limit any possible cross contamination between samples.

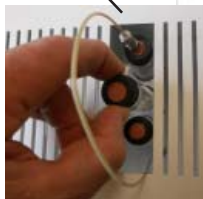
**Inject** - The carrier gas sweeps the components from the trap to the analytical column. With the Purge Valve OFF there is no flow through the other side of the valve. The Purge Valve can be turned ON to blow out the sample lines using a blank Vial.



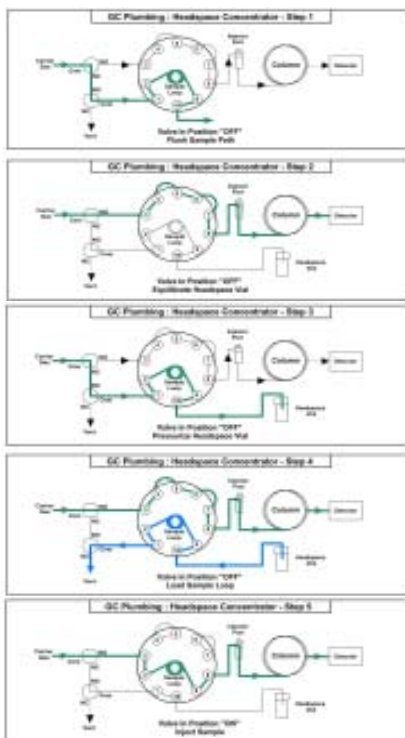
**Purge & Trap Concentrator Plumbing Diagram**



Access Vials through Cover



Headspace Plumbing Diagram



**Headspace Concentrator** - The Headspace Concentrator for Series 600 GC's are built right in to provide the shortest possible sample path. The Sample Vial is heated and then consistently Pressurized before loading the Sample Loop. A fixed Sample Loop ensures reproducible sampling and the sample lines are Flushed between analyses to limit any cross over contamination. The entire sequence of the Headspace Concentrator is automated through the Timeline sequence of DPS GC Control Software for the analysis of one sample at a

**Plumbing Diagram** - In the 1st sequence the carrier gas is diverted to Flush out the Sample Lines. The Sample Probe is then inserted into the Headspace Vial. During the 2nd step the carrier gas flows to the analytical column and the Headspace Vial is heated with the Vial Heater and allowed to equilibrate. During the 3rd step the Headspace Vial is pressurized for a few seconds. In the 4th step the sample is loaded onto the Sample Loop by releasing the pressure in the headspace vial. In the 5th step the Sample Valve is rotated to the ON position and the carrier gas sweeps the components from the Sample Loop onto the analytical column.



Change Vials through Cover

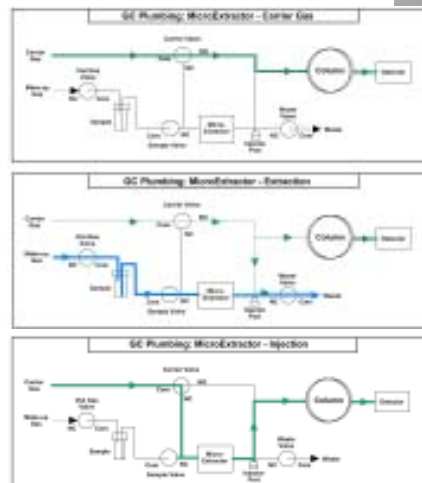


**MicroExtractor Concentrator** - The MicroExtractor concentrator is a exciting innovation exclusively from DPS that concentrates higher boiling compounds directly from water samples. The sample vial is pressurized and the water sample is pushed through the trap at ambient temperature where the compounds are concentrated. Later the trap is heated and the compounds are directed to the analytical column. The entire sequence of the MicroExtractor Concentrator is automated through the Timeline of the DPS Control Software.

**Plumbing Diagram** - We use a series of solenoids, instead of a sample valve to control the flow of carrier gas and the water sample flow through the MicroExtractor.

**Extraction** - The sample vial is pressurized and the water sample flows through the MicroExtractor and then out to waste.

**Injection** - The carrier gas is directed through the MicroExtractor to sweep the compounds to the analytical column.

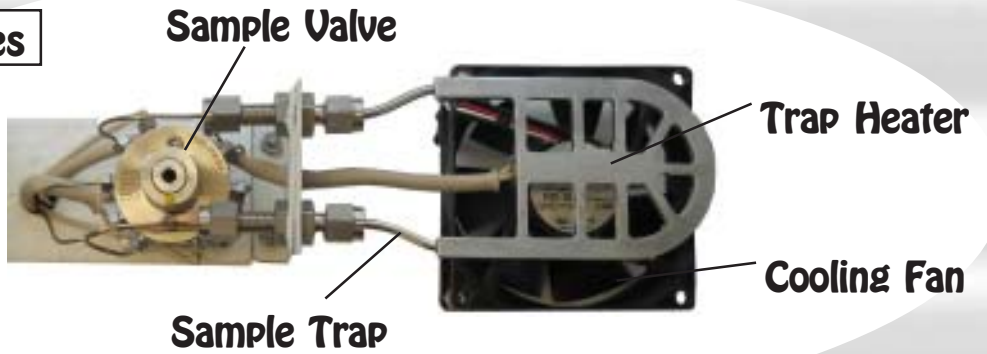
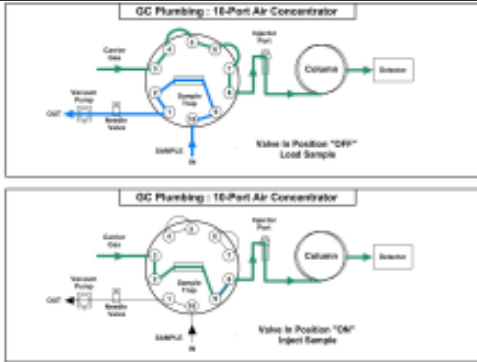


MicroExtractor Plumbing Diagram

# DPS Companion Accessories

## Gas Sample Valve & Trap

### Innovative Plumbing Schemes



## GC Autosamplers

No Additional  
Benchspace Required

Touchscreen

Injects into Both  
Injectors

Mounting Bracket



Headspace

Liquid Injection



## Accessory Kits

### GC Maintenance Kit

Tools, Keyboard, Mouse,  
Voltmeter



### Gas Line Kit

Regulator, Tubing,  
Cutters, Fittings



### Shipping Kit

Syringes, Power Cord,  
Nuts, Ferrules, Screws  
(Included with each GC)



# DPS GC Control Software

Easy to learn and master using a Graphical User Interface (GUI) and Color Touch Screen.

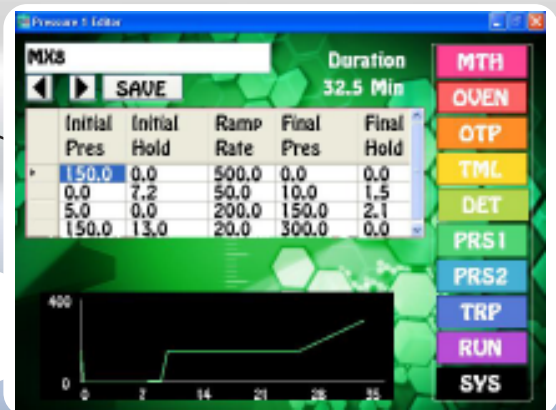
Editors let you customize the files associated with the GC Method.



Oven Temp Program Editor



Timeline Editor



Carrier Pressure 1 Editor



Carrier Pressure 2 Editor

Method Name

Save the current name or create a new one



File Selection Arrows

Navigation Buttons to Quickly jump from one screen to another. Most pages are one button away!



Keyboard to Enter Filenames



Number Pad for entering Values

GC Status pages display the parameters in the method, both graphically and as text and values.



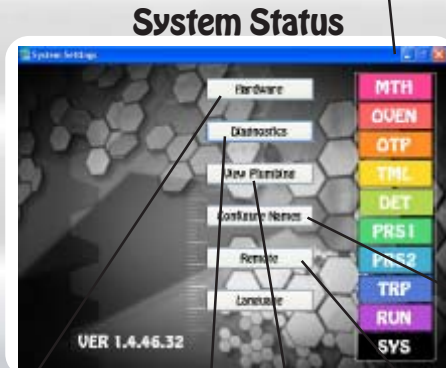
Oven Status



Method Editor



Detector Status

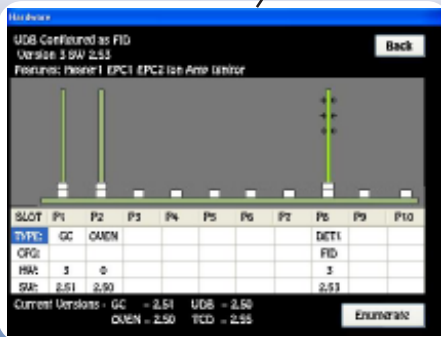


System Status

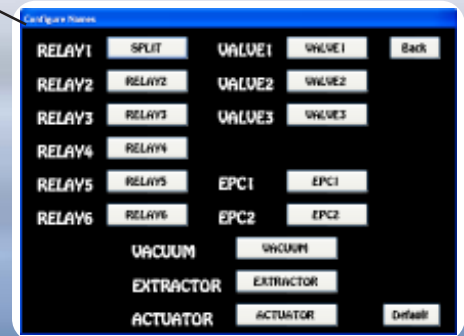


Run Status

System status pages display the health and viability of the GC instrument.



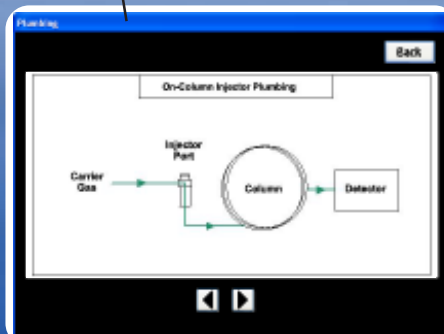
Hardware



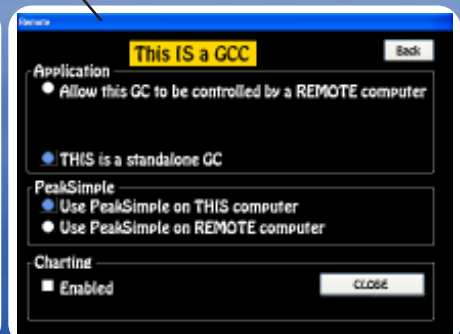
Configure Names



Diagnostics



Plumbing



Remote Control

## Series 600 Specifications:

### Electronics Module:

- Color Touch Screen Instrument Control
- 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, Valves, Traps, etc.
- 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
  - 0 to 700 kPa Pressure Control of all Gases
  - Up to 1400 kPa Pressure Inlet
- Plug and Play GC Control, Oven, and Detector Boards
- Microprocessor Controlled
- Proprietary Digital Signal Processing
- Standard Interfaces
- Liquid and Headspace Autosamplers
- Remote Start and Stop to other lab instruments
- Digital Signal Outputs for each Detector
- Analog Signal Outputs for each Detector.
- Universal voltage input (85 – 240 Vac) with line filter and breaker.

### Detectors:

- 1-4 Detectors Installed
- 400 °C Temperature Limit with 0.1 °C set-point resolution
- Multiple Range Analog Output Selection (0-1V, 0-5V & 0-10V)
- 24-bit Digital Outputs for each detector via USB
- EPC Pressure Control with 0.1 kPa set-point resolution

FID – Flame Ionization Detector (100 pg detection limit)  
 PID – Photoionization Detector (10 pg detection limit)  
 HID – Helium Ionization Detector (100 pg detection limit)  
 NPD – Nitrogen Phosphorus Detector (20 pg detection limit)  
 TID – Thermoionic Detector (20 pg detection limit)  
 BCD – Bromine Chlorine Detector (10 pg detection limit)  
 FPD – Flame Photometric Detector (10 ng Sulfur,  
 10 pg Phosphorus detection limits)

### Oven Module:

- Column Oven:
  - Ambient to 450 °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 Capacity
  - Temperature Ramps with 0.1 °C set-point resolution
  - 23 x 23 x 20 cm area for Glass, SS, or Capillary Columns

### Accessories:

- Sample Valve - Electronically Actuated
- Heated Valve Oven
- Built-in Air Compressor
- Air Concentrator
- Headspace Concentrator
- Purge & Trap Concentrator
- MicroExtractor Concentrator
- Methanizer
- Sample Solenoids
- Vacuum Pump for Sample Inlet

### Injectors:

- 1 or 2 Installed
- Split/Splitless and Heated On-column Injectors
- Standard Liners, Fittings, and Septum
- Multiple Pressure Ramps with 0.1 kPa set-point resolution
- 400 °C Temperature Limit with 0.1 °C set-point resolution

### Autosamplers:

- Liquid Autosampler - 121 Vials, 2 mL
- Headspace Autosampler - 42 Vials, 10 or 20 mL
- Combination Liquid / Headspace Autosampler

### Network Connectivity:

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

### Data Communications:

- Bidirectional communication with Data System
- Analog and Digital Signal Outputs
- Start, Stop & GC Ready Output Signals
- Optional Autosampler Control Software

**DPS Series 600 GC**





After extensive development and testing, DPS Instruments is pleased to present the newest HTA Autosamplers for our Series 600 Gas Chromatographs. Whether you choose the HT3000 121 vial Liquid injection autosampler, the HT 2000 Headspace autosampler with 42 vial capacity, your sample throughput is bound to dramatically increase! The HTA line of autosamplers are rugged and dependable and the built-in Touchscreen display makes them easy to use.

The HTA autosamplers mount directly above the GC, so no additional bench space is needed. The mounting platform hardware and cable connections for the HTA line of Autosamplers are standard on all DPS Series 600 GC Systems. This allows the Autosampler to be added with the initial purchase of the GC, or at a later date when sample volumes increase.

Available Autosamplers include:

600-A-050 - HT3000 - 121 vial Liquid Injection  
600-A-051 - HT2000 - 42 vial Headspace Injection

**No Extra Benchspace Required,  
Drastically Increase Sample Throughput,  
Add one at any Time...**



**DPS GC Autosamplers**

**General Specifications:**

**HT2000 - Headspace Autosampler**

Sampling: 42 Vials 20ml, 6 & 10ml  
Syringe Sizes: 2.5mL, 1 & 5mL optional  
Syringe Temperature: 40 - 150C  
Sample Volume: Steps of 0.01 ul  
Pull Up Strokes: Up to 15 Strokes  
Filling Speed: 0.5 - 100ml/min  
Sampling Repeats: Up to 15  
Time between Samples: 0 - 100 mins  
Injection Speed: 0.5 - 100mls/min  
Shaking Method: Orbital  
Incubation Oven: 6 position  
Oven Temperature: 40 - 170C  
Shaker Speed: Very Low to Very High  
Shaking Cycles: 0 - 9.9 mins  
Injection Depth: Variable  
Electrical Control: LAN & TTL  
Dimensions: 330 x 640 x 320mm  
Weight: 10.0kg  
Power Supply: 100-240VAC, 50-60Hz



**HT3000 - Liquid Autosampler**

Sampling: 121 Vials, 2ml  
Syringe Sizes: 0.5, 1, 5, 10, 25, 50, & 100ul  
Sample Volume: Steps of 0.1 ul  
Air Volume: Steps of 0.1 ul  
Aspirating Speed: 1 -100 ul/sec  
Needle Washing: Up to 15 Strokes  
Washing Mode: Pre-Injection, Sample, Post-Injection  
Air Bubble Removing: Up to 15 Strokes  
Viscosity Time: 0 - 15 secs  
Injection Speed: 1 - 100ul/sec  
Injection Depth: Variable  
Electrical Control: LAN & TTL  
Dimensions: 280 x 570 x 4320mm  
Power Supply: 100-240VAC, 50-60Hz

