



Petrochemical

Methods 25 & 25A - C1-C6 Hydrocarbons



www.dps-instruments.com

Methane is a gas that is naturally formed from the decomposition of biological materials and also produced in many industrial processes. Although Methane is not usually considered an environmental pollutant, the non-Methane composition of gas samples around cities, in industrial areas, and at waste sites is of greater concern. DPS has engineered the Method 25 & 25A GC System, utilizing a Backflush plumbing configuration, to analyze these compounds. Method 25 is for methane and non-methane hydrocarbons, while Method 25A is for total hydrocarbons. The GC System is exactly the same, but not only limited to these analyses, it can also separate the individual C1 - C6 hydrocarbons to further identify the gas sample. Using the rugged and reliable Series 600 Lab GC, or Companion 1 Portable GC, the DPS Method 25 & 25A GC System automatically samples and analyzes the C1 - C6 hydrocarbons using our sensitive FID detector. The fully integrated Method 25 & 25 A GC System is small and lightweight and all DPS systems are modular for expandability, upgrades, and easy service.



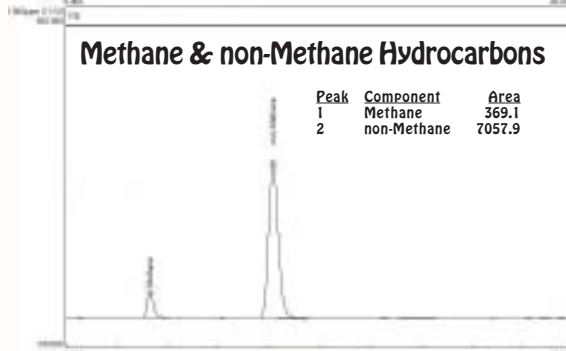
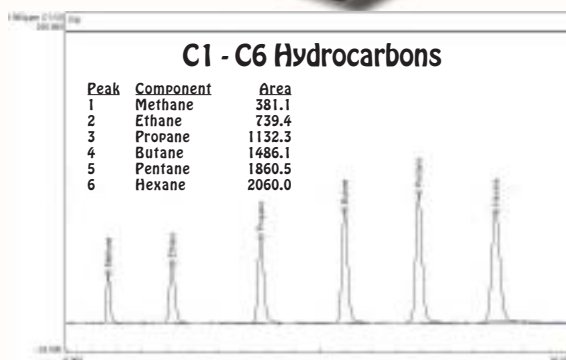
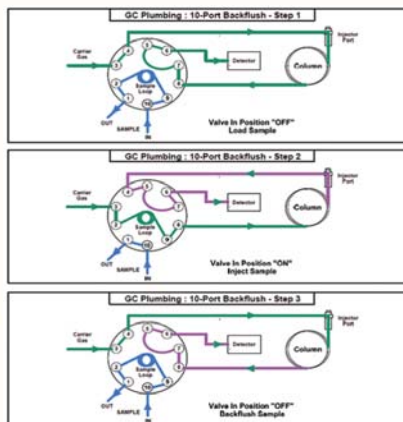
Series 600 GC

Available Configurations Include:

- 600-C-094 - Series 600 Method 25 & 25A GC Analyzer (FID, Valve, 1m Column)
- 500-C-094 - Companion 1 Portable Method 25 & 25A GC Analyzer (FID, Valve, 1m Column)

Method 25 Hydrocarbons

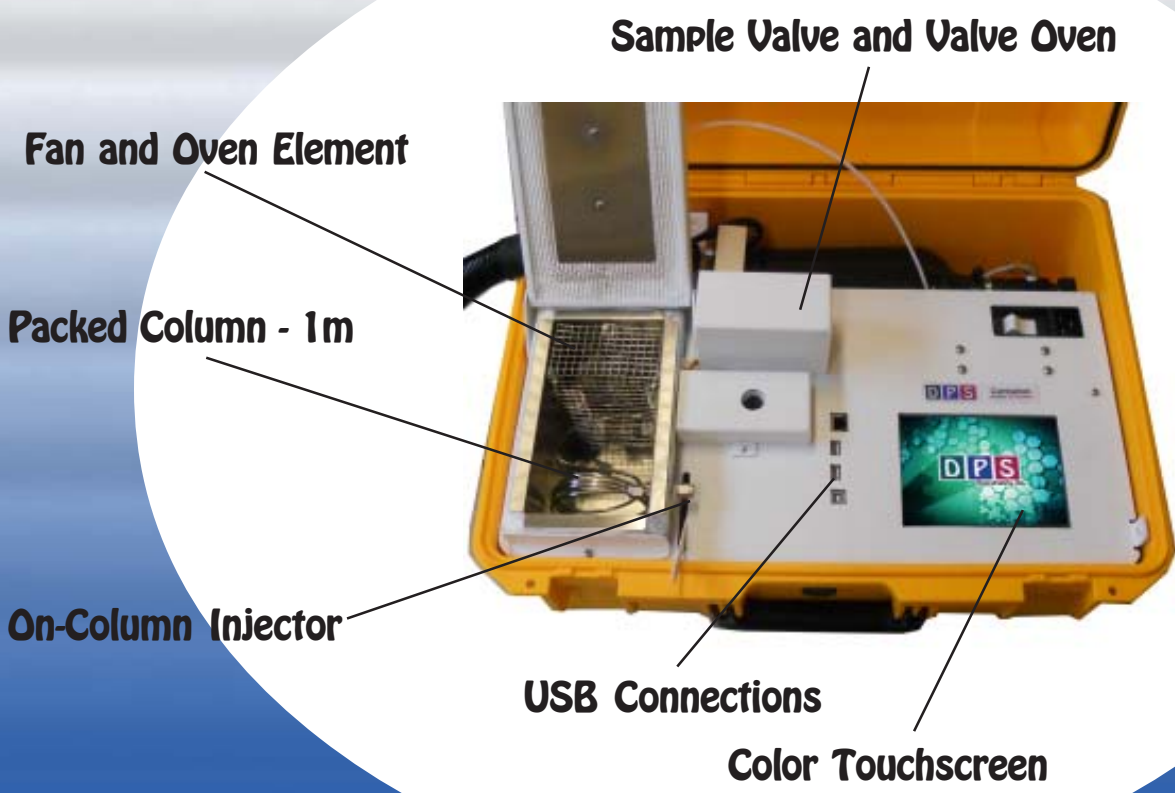
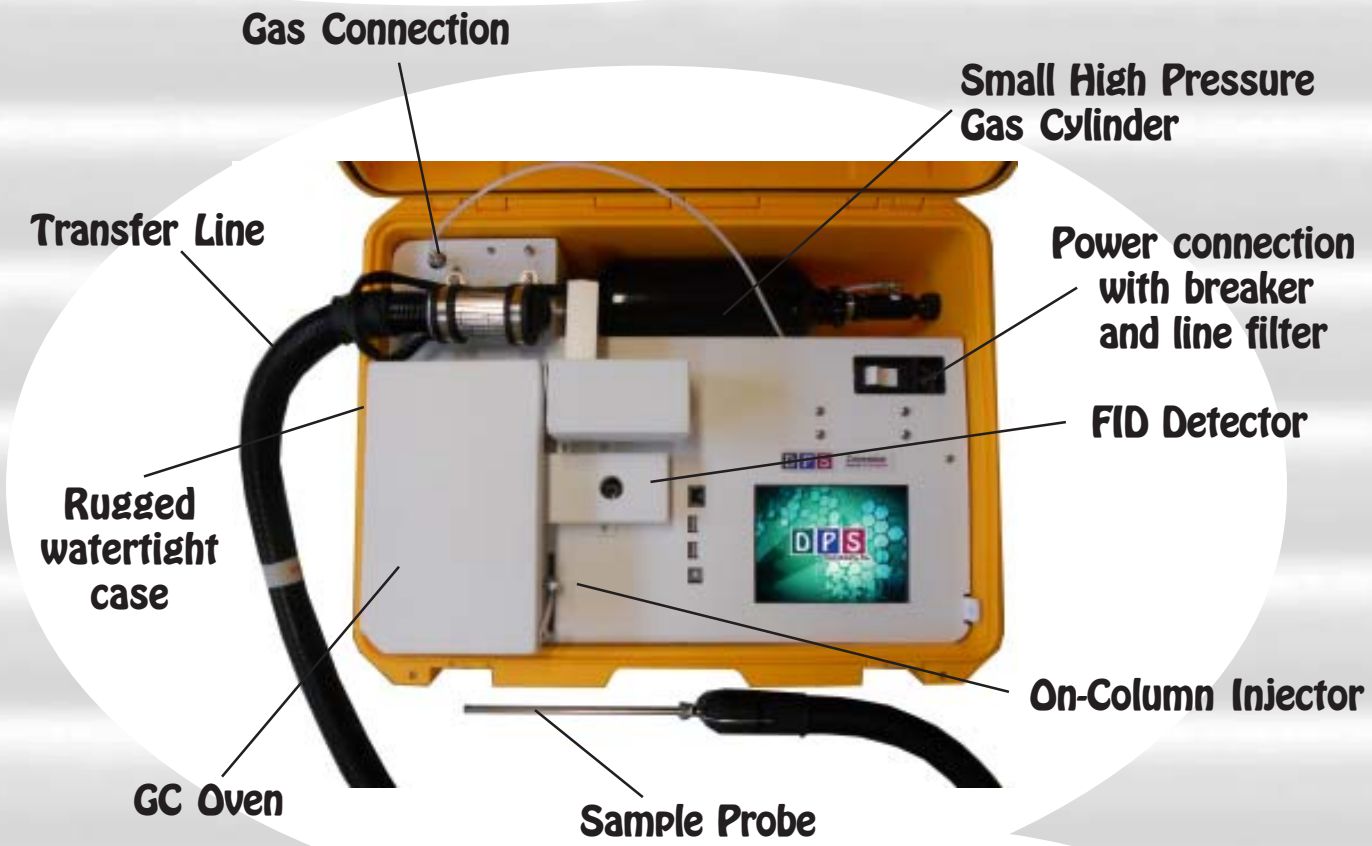
FID Detector
 Detector Temperature = 300C
 Gain = 4
 Valve = 150C
 Collector = -100V
 Carrier = Helium @ 120 kPa = 10mls/min
 Column = 2m x 1/8" Silica Gel
 Temperature Program = 80C (hold 2 min) to 240C @ 15C/min



Companion 1 Portable GC

11/2015 Specifications may change without notice.

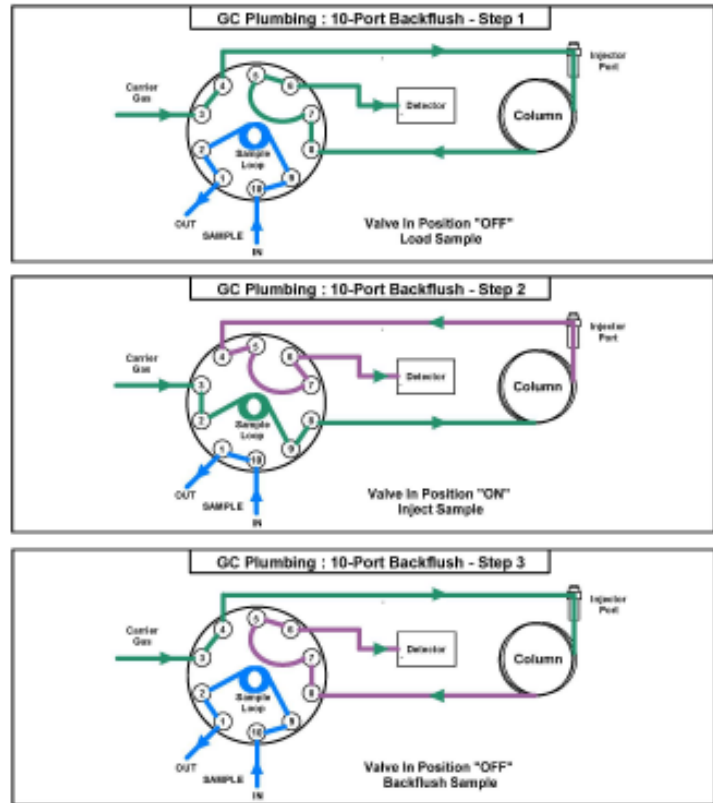
DPS Companion Method 25 Layout



Plumbing Diagram

Load Air Sample: The vacuum pump draws the sample from the Transfer Line through the fixed Sample Loop to the pump to limit any possible cross contamination between samples. The entire sequence of the Method 25 GC Analyzer 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 few minutes.

Backflush Configuration: With the Backflush plumbing configuration the sample is injected into the column by rotating the valve. The valve and sample lines are heated creating an inert sample path. When the compounds of interest have eluted from the column, the rest of the compounds can be Backflushed out of the column to the detector as one peak, which represents the total of all other compounds. For a Method 25 analysis Methane is allowed to elute from the column and then the valve is rotated back to Backflush all of the other compounds forming the non-Methane peak. Both Methane and non-Methane constituents are calibrated separately. By simply adjusting the time at which the valve rotates back, the analysis could be altered to separate Methane, Ethane and then a total of C3+ compounds. Using the same technique the valve can be rotated to Backflush after any carbon group C1, C2, C3, C4, C5 etc.



Backflush Plumbing Diagram

Results, Data & Connectivity

Results: The Results can be saved for each sample, or they can be printed, or they can be tabulated into a .LOG file, when you are collecting a vast amount of data over a long time period. The format of the .LOG file is text, so it can be opened by any word processing program.

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.

Method 25 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

- 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:

Packed, or 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 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:

- Backflush Sample Plumbing
- Heated Transfer Line
- Air Compressor for FID

Injectors:

- Heated On-column Injector
- 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!"